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HYPERTROPHY OF THE PROSTATE GLAND.*

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It is hardly possible to enter into a consideration of prostatic hypertrophy without first calling attention to the anatomy and also the physiology of the organ.

Briefly it may be described as a musculo-glandular organ surrounding the neck of the bladder and the commencement of the urethra. It has been likened in shape and size to a chestnut, its base projecting further up behind than in front. Its anterior surface looks upward and forward, and is slightly convex. The posterior surface looks downward and backward and is more flattened than the anterior. The lateral borders are sharply defined and rounded. The base looks upward and backward and has a funnel-shaped depression for the neck of the bladder. Anteriorly and posteriorly there is a fairly well marked longitudinal commissure through the median line, thus dividing the gland into two lateral lobes. About one-third of an inch below the funnel-shaped depression for the neck of the bladder is another similar depression where the ejaculatory ducts enter the so-called middle portion. The gland is tunneled by the prostatic urethra, the ejaculatory ducts, and also by its own ducts. On the prostatic floor is an erectile structure known as the veru montanum, in front of which on either side are the openings of the ejaculatory ducts. In depressions on each side of the Veru are the minute openings of the prostatic ducts, numbering from twenty to twenty-four.

From base to apex the gland measures from an inch and a quarter

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to an inch and a half. The transverse diameter is about an inch and three quarters, and the thickness about three-quarters of an inch. The prostate is situated between the neck of the bladder above and the upper layer of the triangular ligament below. In front it lies just behind and below the symphysis pubis, and posteriorly it rests upon the rectum, through which it can be distinctly felt, especially when it is hypertrophied.

The gland is enclosed in a firm musculo-fibrous capsule. The parenchyma is composed of muscular fibres reflected from the capsule, and numerous follicular pouches, resembling somewhat in structure the racemose glands.

Normally the prostate is composed of but two lobes, and the so-called middle lobe is in reality a morbid growth. The two lateral lobes diverge posteriorly from the base of the gland, thus leaving a triangular space at the neck of the bladder, and this space is filled with a highly vascular and rich glandular tissue. Anent this, Lydston remarks that "A dissection of the prostate and its associated glandular structures would be highly interesting to those who believe that deep gonorrhoeal infection in the male may be speedily cured by instilling a few drops of silver nitrate solution into the prostatic urethra."

Briefly stated, the function of the prostate is to dilute the spermatic fluid by means of its glandular secretion, and with its muscular element to assist in the expulsion of the urine.

The etiology of prostatic hypertrophy has until very recently been unknown. Even so excellent a work as Prince A. Morrow's "System of Genito-Urinary Diseases" states that the etiology has not yet been determined. One phase of the question that caused dissension amongst the pathologists was that since the organ was composed of glandular, muscular and fibrous tissue, why might not the hypertrophy be merely an increase of the glandular tissue, or in other words, an adenoma? Or why not an increase in the muscular tissue, a myoma, or an increase in the fibrous element, a fibroma? These views have held until recently, when owing to the prevalency of prostatic hypertrophy in those persons that gave a history of a past urethritis, some observers advanced the opinion that the hypertrophy noted in the aged was not a tumor formation at all, but an inflammatory process instigated, perhaps, by a latent or dormant post-urethral inflammation.

The amusing feature of the various views advanced is that undoubtedly the opinions advanced a century ago are much more logical than those advanced in the past decade. Lydston,¹ in his excellent work on Genito-Urinary Diseases, details some of the opinions to explain prostatic hypertrophy, a few of which I shall briefly mention,

Home, about seventy-five years ago, stated that the cause of prostatic disease was the slow return of blood from the vesical neck, due to the disadvantageous situation of the veins in relation to the heart, which would favor habitual congestion of the vessels. This tendency to congestion in his opinion was much enhanced by high living, or any other circumstances that increased the circulation in this region.

Wilson in 1881 endorsed the opinion of Home so far as the tendency to the disease on the part of high livers is concerned. He claimed that strict celibacy on the one hand and venereal excess on the other are alike productive of the disease, though admitting exceptional cases in persons who live abstemious and temperate lives.

Samuel Cooper confessed ignorance as to the cause, but thought that persons who lead sedentary lives were more prone to the disease.

Sir Astley Cooper thought that the prostatic hypertrophy was due to old age alone, and not to disease.

The late Dr. Gross thought that prostatic hypertrophy was due to habitual engorgement of the organ, as in protracted and oft-repeated intercourse, irritation from vesical calculi, the free use of stimulating diuretics and alcoholic or malt liquors, exposure to cold, etc.

Thompson states positively that prostatic enlargement is seen in young patients as a result of interstitial plastic effusion, due to inflammation, but that the enlargement occurring in old age is an unnatural development of the prostatic tissue properly, viz: true hypertrophy. He holds that inflammation and its products do not favor growth, but are directly antagonistic to it, and hence a prostate enlarged by inflammatory effusion is less likely subsequently to become hypertrophied. In other words, Thompson excludes inflammation from the etiology. He says that habitual engorgement of the prostatic and hemorrhoidal plexuses have nothing whatever to do with the etiology of the disease.

Guyon and his followers in the modern French school hold that prostatic hypertrophy is not a local disease and due to local causes—in fact that the genito-urinary apparatus has nothing to do with it, but that it is dependent upon a general atheroma; the walls of the bladder become weakened and there is a resultant accumulation of residual urine followed by cystitis prior to the enlargement of the prostate.

Lydston divides the causes of prostatic enlargement into general and local. Under general causes he mentions senility, the gouty or rheumatic diathesis, and general atheroma. Under local causes are placed chronic irritation and hyperemia, due to urethral or bladder disease, early prostatic infection, masturbation, sexual excess, prolonged or ungratified sexual excitement.

Coming down to some of the most recent views expressed upon this subject, Albarran and Halle, after exhaustive investigations and studies of numerous specimens, advanced the opinion that the hypertrophy was due to chronic inflammation, and was nearly always of a glandular nature—adenomatus, and that the fibro-myomatous tumors are secondary, and may form a part of the enlargement. If the fibro-myomatous development predominates, there may be an actual atrophy of the glandular element.

Ciechanowski has perhaps done more than any other man of recent times toward reaching the true solution of the problem. After studying sections made from many diseased prostates, he concludes that senile prostatic hypertrophy is an inflammatory process. If the original focus of the disease should be near the periphery, there is a connective tissue hyperplasia and a resultant small, hard prostate. On the contrary, if the focus of the disease is toward the centre, as in the ducts or follicles, the result would be the soft enlarged prostate, or adenomatous variety. He failed to find any cases of the myomatous species. Ciechanowski concludes that as all prostates examined by him were of inflammatory origin, he is certain that urethritis is the prime factor in the whole affair.

Acting along the line of Ciechanowski's suggestions, Doctors R. H. Green and Harlow Brooks,² of New York have quite recently added some valuable information to the etiology and pathology of this infection. They really took up the work at first to disprove the statements of Ciechanowski, but after getting well under way with their investigations they were soon won over to his way of thinking. They sum up their conclusions as follows:

1. Prostatic hypertrophy of the aged is the result of chronic prostatitis.
2. It most frequently arises from chronic posterior urethritis, of whatever cause.
3. True neoplasms of the prostate are rare, and are not concerned in the production of prostatic hypertrophy.
4. Carcinoma is apt to occur in the hypertrophied prostate as a result of the chronic inflammatory process.

My clinical experience with this affection certainly causes a full concurrence with the opinions of Albarran, Halle, Ciechanowski, Greene and Brooks.

While it is of course true that there may be a tumor formation either benign or malignant, yet it is certain that these conditions are rare, and that the prostatic hypertrophy found in the aged is nearly always dependent upon an inflammatory process, and most cases are traceable to a former urethritis.

Morbid Anatomy.—One of the first of the morbid conditions is an obstruction to the return of blood from the bladder, due to the vesical veins emptying into the compressed prostatic veins. On this account there follows a congestion of the bladder and prostate. The floor of the bladder behind the prostate becomes thin and dilated, forming a pouch in the trigone, and here it is that some urine is left after each micturation. This residual urine is of course in proportion to the amount of saculation. It may undergo ammoniacal fermentation before the beginning of catheter life, but it is a wonderful exception not to have this fermentation after the introduction of a first catheter. On account of the mechanical obstruction to urination, a compensatory hypertrophy takes place, which may be either preceded or followed by a cystitis. There is then a constant desire to urinate, the bladder never being able to empty itself on account of the depression at the *bas fond*. Trabeculation of the mucosa follows, and then diverticula may form between the layers of muscular fibres. On account of the mechanical obstruction there is a serious impediment to the venous return. The desire to urinate is generally worse at night than during the day, which is accounted for by the fact that bodily activity during wakefulness improves the circulation and tends to prevent venous stasis. The desire to urinate is also worse when there is a surplus of blood in the pelvic veins, as would exist from constipation or over-eating. The prostatic urethra, on account of the hypertrophy, becomes elongated, and its curvature is increased. For this reason the instruments used for exploration must have a different curve from the ones used in the normal urethra. There may be a dilation of the ureters and renal pelvis with stagnation of urine in them. There may be a congestion or catarrhal inflammation of the entire urinary tract.

Often these former conditions may be followed by the formation of a vesical calculus. In fact everything is quite propitious for such formation, for on account of the presence of residual urine and its ammoniacal fermentation, there is a deposit of the phosphates, a co-mingling of these with muco-pus which would favor adhesion, and thus, form a nucleus for a calculus, which might in a comparatively short time assume large proportions.

After catheter life is begun there may be a septic inflammation extending up the ureters to the kidneys, and producing a cysto-pyelonephritis.

There may be chronic uremia, or death may end all by a supervening acute uremia.

Symptoms.—From the above mentioned morbid changes the symptoms may well be imagined without my detailing them. Suffice it to say

that the first thing the patient would notice would be the frequency of micturation, or a difficulty in micturation. As Guyon well expresses it, "There is a stammering urination." There may be some pain at the beginning and at the end of the act. At first this may not cause any uneasiness on the part of the patient, but soon when these symptoms become aggravated, the intervals of urination become shorter and the pain increased, he then realizes that something is radically wrong with him. The patient may have a slight temperature, accompanied as usual with pains in the back, headache, and thirst, all of which are merely the evidences of a mild uremia. At this juncture the polyuria and low specific gravity of the urine may mislead the physician into a diagnosis of diabetes insipidus. The urine has quite a deposit upon standing, and also a most disagreeable odor. If there is constipation and straining at stool, the vesical pains may be much increased, and there is a severe burning sensation after the stool, at the neck of the bladder. When the hypertrophy becomes extensive the bladder capacity becomes quite small, and the viscus can hold but little urine. There may be haematuria, either infrequent or persistent. The amount of residual urine constantly increases, and may amount to a quart or more. Incontinence soon comes on, due to the constant state of distention, and to a loss of tonicity of the compressor urethrae. Retention of urine is apt to come on at any time, and is usually favored by the patient getting his feet wet, eating to excess, constipation and distention of the rectum, alcoholic or sexual excess, or operations upon the anus or genitalia.

Diagnosis.—In making a diagnosis of prostatic hypertrophy, we must differentiate between prostatic cancer, tuberculosis of the prostate and bladder, degeneration of the bladder walls, vesical and renal calculi, urethral stricture and vesical tumors. The age of the patient should of course be taken into consideration, and if he is past forty-five, it is well to suspect prostatic hypertrophy, if the symptoms above enumerated are present.

He should be directed to urinate, and the character and quantity noted. A sterile rubber catheter lubricated with lubrichondrin should then be passed with the patient in dorsal decubitus. Some difficulty may arise in the introduction of the catheter, especially if the hypertrophy is extensive in the so-called median lobe. It may be necessary to try a Mercier or Guyon catheter, or one with the Benique curve. The more it is necessary to depress the instrument to get it in the bladder, the larger is the middle portion. After the catheter is introduced, the amount and character of residual urine is noted. It should then be mixed with the urine voluntarily passed, and set aside for chem-

ical and microscopical analysis. If one lateral lobe is more enlarged than the other, the distal end of the catheter may be deviated to the opposite side on account of the impingement of the beak of the instrument against this projecting lobe. The character of the enlargement may also be determined by the resistance and touch of the catheter, trabeculations and rugae thus being outlined. The amount of elongation can be determined by noting the depth necessary to introduce the catheter before urine begins to flow. The finger introduced into the rectum will impinge upon a mass that can often be accurately outlined. There may be considerable tenderness on touch, and the examination should be conducted as gently as possible.

The cystoscope is perhaps the most valuable aid to a correct diagnosis, and yet there are cases where it is impossible and unwise to use it on account of the cystitis which is already established. Cocaine should be used guardedly, still, if instrumentation is very painful, it is well to use it, as the examination can be more thoroughly made under its aid. If the principal part of the enlarged gland is pointing away from the bladder, the rectal examination will reveal much that is valuable, but when there is quite an encroachment into the bladder space, then the cystoscope is the thing par excellence in making a thorough diagnosing. It will reveal directly to the eye the size, location and general character of the enlargement. The trabeculation of the cystic walls can be beautifully pictured, diverticula and calculi can be found, and the general condition of the bladder walls noted. I have made several cystoscopic examinations of enlarged postates, and although Taylor³ says that it should only be used in rare cases, my limited experience indicates that it should be used in every case unless contra-indicated by an acute cystic inflammation.

Frequency.—Thompson concludes that one man out of every three has an enlargement of the prostate in a moderate degree at middle age. After the age of fifty one man in every eight has a marked enlargement. The disease rarely begins later than seventy years of age.

Treatment.—The treatment of prostatic hypertrophy is divided into palliative and operative. While of course no case of prostatic hypertrophy could be cured by any known medicinate agent, or anything short of a surgical procedure, much can be done to relieve the patient and render him fairly comfortable by what is known as the palliative treatment. In fact this palliative treatment may be an actual necessity to put the patient in a suitable condition for the radical cure. The bowels should be kept open so as to avoid straining at stool and vesical venous stasis. Rectal enemata of warm saline solution, or of magnesia sulphate and glycerine to deplete the pelvis, is a rational procedure.

Any gouty or rheumatic diathesis should be corrected by suitable medication. The urine should be kept bland and non-irritating. Amongst those agents that are efficacious in relieving vesical irritability may be mentioned eucalyptus, salol, saw palmetto, triticum repens, santal oil and pichi. Lydston¹ advocates the use of potassium bromide combined with ergot and gelsemium to allay the activity of the muscular fibres surrounding the prostate, and to quiet the sexual function. Temperate habits should be insisted upon and the use of alcoholics and sexual intercourse absolutely forbidden. Mineral waters drank freely to dilute the urine always afford relief. Exposure should be avoided, and also any violent exercise, but moderate exercise in the open air should be encouraged. The decomposition and ammoniacal fermentation of the urine should be corrected as far as possible. For this I have used urotropin in 7 grain doses three times a day with much success. Cystogen has also proven of considerable value for this purpose. Much relief can be obtained from catheterization, and if possible it should always be done by the physician. The soft rubber catheters of Jacques are the best, especially if the patient is to catheterize himself. If the Jacques catheter cannot be introduced, then the catheter coude of Mercier is the one to use. In introducing a catheter in a prostatic hypertrophy, the roof of the urethra should be hugged as near as possible. When the posterior urethra is reached, its entrance may be much facilitated by pressure on the perineum thus lifting the point on or over the middle lobe. If it cannot be done in this way, it can nearly always be accomplished by introducing a finger into the rectum and pushing the tip of the catheter upward. At each catheterization, the bladder should be washed out with some antiseptic solution. Many favor boric acid for this purpose, but my experience is that nothing can take the place of hot permanganate of potash solution, about 1 to 6,000 in strength. Where there has been retention of urine, great care should be observed in catheterizing not to draw off all the urine, or else the sudden removal of the pressure might set up such an inflammation as to cause alarming symptoms or even death. Dribbling of urine from the bladder should always excite suspicion of over-distention, and the patient should be catheterized at once.

Operative Treatment.—There is an intimate connection between the testes and the prostate gland, and in congenital absence of the testicles there is always a marked atrophy of the prostate, or even a complete absence of one lobe. Eunuchs are said never to suffer with prostatic troubles, and these facts encouraged some operators to castrate prostatiques in the hope of obtaining relief from their distressing symptoms. Many report favorable results from the operation, but it

is now relegated to the shelf, and I only mention it to condemn it. In the same category may be mentioned vasectomy, or division of the vas deferens. I note a number of favorable results from this operation, but I do not think it is a rational or justifiable procedure.

I shall only call attention to the Bottini method of prostatotomy, as that is the only prostatotomy that is being done very much at the present time.

When the operation of Bottini had become to fall in disfavor, owing to defects in the instrument as well as to carelessness (or ignorance) of some operators, it was taken up by Freudenburg, who has done more than any one else to perfect it. However, Young, of Baltimore, has added some decided improvements on the instrument of Freudenburg. In a recent article in the *Journal of the American Medical Association*,⁴ he describes the modification and reports eight operations with the new instrument, all with good results. In the instrument Bottini-Freudenburg there is only one galvanocautery blade, and Young well contended that this one cutting instrument was not suitable to all cases. In extensive hypertrophies there would not be a sufficiently deep incision, while in small enlargements there was great danger in cutting too deeply—in fact, cutting through the bladder walls. With this idea in view he had an instrument constructed a short time ago that has four different blades. His smallest blade has an elevation of .8 cm. Blade No. 2 has an elevation of 1.2 cm.; No. 3 has 1.7 cm., and No. 4, 2.1 cm. Blade No. 3 corresponds to the one usually found in Freudenburg's instrument, and is the one most generally used, while No. 2 is useful in small hypertrophies, and No. 4 in very large ones. His blade No. 1 has not yet been used, and was put in, as he says, "Merely to complete the set."

Young also made a change in the contact surfaces, thus avoiding the annoying heating of the handle of the instrument. The only other change made was to increase the curvature of the beak, or rather to make the beak more of a right angle with the shaft, so that in making traction against the prostate at the time of cutting, so as to accurately apply the knife, there would be no danger of the instrument slipping out of the bladder into the urethra, and thus making the incision in the wrong place. He cites a case in which this accident happened to him while using the Freudenburg instrument—in this instance the instrument slipped out of the bladder, and the incision was made into the membranous urethra. He fortunately discovered the accident and was thus enabled to save the man's life by a timely operation. I will give briefly the technique of the operation:

A cystoscopic examination should be made to ascertain the condition

of the bladder walls, the size and location of the enlargements, and the presence of frabeculae, diverticula and calculi. The gland should also be examined by rectal touch, and the size, shape and consistency of the lobes noted. The thickness of the gland can be accurately determined by the passage of a sound in the bladder, and the location of this with the finger in the rectum. With these various facts before the surgeon he can readily decide what blade is to be used, where to make the incisions, and what length to make them. It is very rare that it is necessary to make an incision over an inch and a half or two inches. As a rule an incision through each lobe is sufficient.

Before the operation the bladder should be thoroughly washed out with salt solution or boric acid, and after it comes away clear some of it is left in the bladder to distend it. The urethra is anaesthetized with cocaine or eucaine, the patient having previously received one-fourth to one-half a grain of morphia. The battery is now tested to see that it is in working order, and also to ascertain what amount of current is necessary to produce a white heat in the incisor. The instrument is then introduced into the bladder, and the cooling apparatus turned on. After it is well in the bladder, the beak is turned downward and the instrument drawn forward until it is in snug contact with the enlarged median lobe. The current is then turned on and the wheel turned which brings the incisor out from its receptacle. This is continued until the scale shows the incision has been made the desired length. The current is turned off, and the incisor returned to its groove by reversing the turn of the wheel. If it is desired to incise one or both of the lateral lobes, the beak is turned so as to bring its concave part in contact with the lobe. Current is turned on, and incisor withdrawn as before.

The operation completed, the blade is returned to its receptacle, allowed to cool a moment, and the instrument is withdrawn. Patient is put to bed and allowed to urinate if he can, and if not he can be catheterized as necessary.

Although this is so simple, yet the results that are being obtained are exceedingly gratifying. Dr. Ramon Guiteras⁵ reports the following:

"It is difficult to conceive why an operation consisting simply in burning linear scars into the sides and floor of the prostate gland, and followed by the casting off of sloughs, should cause such a reduction of the urinary obstruction, and such a contraction of the gland; clinical evidence, however, supports the truth of this statement."

Dr. Orville Horwitz⁶ of Philadelphia sums up his conclusions on the Bottini operation as follows:

1. Success following the Bottini operation depends on having perfect instruments, a good battery, the necessary skill and the employment of a perfect technique.

2. In suitable cases the Bottini operation is the safest and best for the radical cure thus far devised for the relief of prostatic hypertrophy.

3. It is often very efficacious as a palliative measure in advanced cases of obstruction, rendering catheterism easy and painless, relieving spasm, lessening the tendency to constipation, and improving the general health.

4. It is of special service in the beginning of obstructive symptoms due to hypertrophy of the prostate gland, and may be regarded as a means of preventing catheter life.

5. It is indicated in all forms of hypertrophy, except where there is a valvular formation, or where there is an enormous growth of the three lobes, associated with tumor formation giving rise to a pouch both above and below the prostate gland.

6. Where the bladder is hopelessly damaged, together with a general atheromatous condition of the blood vessels, associated with polyuria, the results are negative.

7. Pyelitis is not a contra-indication as a resort to the operation.

8. The character of the prostate growth has no bearing on the results of the operation.

Dr. Young reports that in 41 cases he had three deaths, but adds that these three men were all in very bad condition before the operation. Fifteen of these forty-one were over seventy years of age, and three were over eighty, and among these there were no deaths, and all but one have been cured. He sums up by saying that "As to the efficiency of the Bottini operation, of which I was myself at first very skeptical, my experience (now of forty-one operations) forces me to testify decidedly in its favor."

My paper has already assumed such proportions that I can but briefly mention the operations of prostatectomy. In some cases, especially where the gland encroaches in its enlargement towards the bladder cavity, a supra-pubic cystotomy will suffice to reach it. This is more especially suited to those cases in which there is a large median lobe hypertrophy.

Prior to the operation the bladder should be thoroughly irrigated with a warm bichloride solution, about 1 to 20,000, or else with warm boric acid solution. After thoroughly cleansing the bladder some of the solution should be allowed to remain. A rectal bag introduced in a collapsed state and distended after introduction either with air or water, may be used to assist in pushing the bladder up toward the abdominal

walls. The pubes having been shaved and thoroughly cleansed in the usual way, the patient is anaesthetized and placed in the Trendelenburg posture. An incision about three inches in length is made in the median line just above the pubes. After cutting through the linea alba and the median aponeurosis the bladder can easily be felt. The layer of prevesical fat and the fold of peritoneum are rolled up into the upper angle of the wound and held by an assistant. Retention sutures are then introduced on either side, which should go well into the muscular wall of the bladder. A small slit is then made through the bladder, and the wound retracted for inspection, which can be made either digitally or by the aid of a small electric light. An incision is then made through the mucous membrane over the projecting lobe, and the gland enucleated with the finger or by means of forceps. Often much hemorrhage will ensue, which may be quite difficult to control. After the operation is completed, the bladder is washed out with hot saline solution, and drained by means of a rubber tube with two eyes. The bladder wall is sutured tightly around the tube, so as to prevent any escape of urine into the space of Retzius, a piece of gauze is inserted into this space and protrudes through the abdominal wound, and the latter sewed at either end and left open in the centre for the exit of the drainage tube and gauze. To the drainage tube a glass coupler is attached and to this a long tube reaching under the bed and emptying into a jar containing bichloride solution. A siphon drainage is thus established which is sufficient for all purposes.

Many of our best genito-urinary men seem to favor the supra-pubic operation rather than the perineal. The operation was first done by Belfield of Chicago, and afterwards by McGill, of Leeds, England, and is now known as the Belfield-McGill operation. Dr. Wishard⁷ of Indianapolis, says: "If the supra-pubic operation has been thoroughly done and the obstruction all removed, the patients afterward are assured of a more perfect function than by any other method."

Perineal Prostatectomy.—Time will not permit me to go into the details of the several perineal operations for the removal of enlarged prostates, and I can only say that from extensive reading of all the recent literature I can obtain on this subject, that the median incision as advocated by Dr. Alexander Hugh Ferguson⁸, of Chicago, seems to me the most rational, as well as the most successful. The operation is as follows: The patient is placed in the extreme lithotomy position, after he is anaesthetized with chloroform. A prostatic depressor, which is similar to a sound, only that it has a flattened loop end, is passed into the bladder via the urethra, and is held by an assistant. Of course the beak, or flattened portion, is turned over after it enters the bladder

so as to bring it into intimate contact with the prostate. A sponge is inserted into the rectum, so as to prevent any escape of fecal matter onto the field of operation. The finger of the left hand is then introduced into the rectum for a guide, and is pressed against the urethra at the junction of the membranous and prostatic portions. A long, narrow-bladed knife is then passed through the raphe into the perineum two inches in front of the anus. With one sweep of the knife, all the structures down to the prostate are cut through without injury to the prostate, urethra, rectum or anal sphincter.

The skin incision is now enlarged if necessary for the introduction of two fingers. Two retractors are placed in the wound, downward and outward traction made, and the prostate exposed by blunt dissection, and pushed into the wound by means of the depressor in the bladder. The capsule is then opened with knife or scissors in transverse direction, the incision being made sufficiently large to admit the introduction of one or two fingers. The retractors are then placed in the capsule, and the gland thus brought further into the wound and held firmly for enucleation. The enucleation can be accomplished with the fingers and the remainder snipped off with prostatic forceps, and by piecemeal the prostatectomy is completed. The bladder is well washed out, and a drainage tube wrapped with iodoform gauze is introduced through the wound in the bladder. A stitch or two will close the wound and hold the drainage tube in situ. A long rubber tube is attached to the drainage tube and the toilet of the operation is complete.

Some operators, notably Alexander, advocate the combined suprapubic and perineal operations, and claim that the gland can be better engaged in the perineal wound by pressure from above. I do not believe this has any advantage over the median perineal operation just described, for by means of the depressor in the bladder the gland can be brought well into the perineal wound.

In concluding, my inference is as follows:

1. That it is a mistake to put off the operation until the patient has become debilitated to such an extent as to render any kind of a surgical procedure dangerous.
2. When the enlargement becomes of sufficient size to prevent urination, or cause a large amount of residual urine, and the catheter has to be constantly resorted to, an operation is fully warranted.
3. In the very old, or very weak, the Bottini operation is the one of choice.
4. In all cases where the major part of the hypertrophy is intravesical, the Bottini operation is quite the best.
5. In cases of enlarged or pedunculated middle lobe and slight lateral enlargement, the supra-pubic operation is the best.

6. In the cases of enormous hypertrophy of the entire gland, or cases of considerable lateral lobe enlargement, the perineal operation will afford the best relief.

7. The cystoscope is a most valuable adjunct in making a correct diagnosis, and in determining what is the elect operation for each particular case.

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THE RELATION OF THE STATE TO TUBERCULOSIS.*

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My reason for presenting this paper before this meeting is the fact that I firmly believe in the necessity for a careful consideration of Tuberculosis in all its phases by this Association. No attempt will be made to prove the infectiousness of Tuberculosis—that has long ago been determined; nor to enter into the consideration of the pathology and symptoms of the disease thoroughly—for if you know the pathology and symptoms of any one disease—that disease is tuberculosis; nor yet to set forth the latest views with regard to treatment, except as I believe the State is directly interested in this point—for with all these you are familiar, but it is my desire to consider the relation that organized society bears to its members who are suffering from the disease on the one hand, and of the relations of these members to the Commonwealth on the other.

No other disease so regularly and constantly gathers its victims as Tuberculosis. Pneumonia, diphtheria, typhoid fever, yellow fever and cholera occasionally greatly increase the death-rate of special communities, but Tuberculosis affects all communities all the time and steadily builds up a death-rate that no other disease can approach. Recent statistics, compiled from the census of 1900, show that in the ten chief cities of the United States the deaths from Tuberculosis reach the proportion of one in every 9.1 deaths from all causes, or one death from Tuberculosis to every 8.1 deaths from all other causes. Taking it for granted that the rate would not be so high for the smaller cities and the country districts,

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yet we would be safe to assume the death-rate of Tuberculosis to be not very far from 10 per cent. Monsieur Amodru, Chairman of the French Committee to investigate Tuberculosis, estimates that the number of deaths from this disease in France is yearly 150,000. When the fact is remembered that the birth-rate of France is low, these figures assume large proportions. This committee also reported that in Paris and the department of the Seine, in a given space of time, consumption each year caused 38 times more deaths than varioloid and scarlatina combined, 16 times more than typhoid fever and 18 times more than diphtheria! To bring the matter closer home, in Jefferson county, Ala., during certain seasons of the year, usually in the winter months, the number of deaths from Tuberculosis and pneumonia exceeds one-third of the whole number of deaths from all causes. The statistics of our State are too incomplete to be of much value.

Many more collections of statistics might be added to prove the assertion that Tuberculosis causes an enormous death-rate, but they are not needed. Surely a careful consideration of this subject must be timely.

THE QUESTION OF NOTIFICATION AND REGISTRATION OF TUBERCULARS.

Should the community require that cases of Tuberculosis be registered? We have stringent laws regulating the notification, registration, placarding, quarantining and carrying out of proper hygienic procedures with regard to scarlatina, diphtheria and small-pox, yet nothing is done in the matter of the commonwealth vs. the tubercular. It is thoroughly understood that the majority of cases of consumption are transmitted on account of lack of care in the observance of the simplest hygienic rules. The disease is readily communicable, and the sufferer may infect premises which will cause cases of Tuberculosis to develop months and possibly years later. Tubercular individuals closely associated with sound persons, especially in crowded living apartments are fruitful sources of contagion. I believe firmly that every case of Tuberculosis should be reported to the County or City Boards of Health, and registered by the same. The idea of isolation and quarantine does not necessarily have to go with notification and registration. The methods of the transmission of the disease are well understood and among intelligent people who have been carefully advised in the matter of prophylaxis, the danger of spreading the infection is slight. Statistics from hospitals and sanatoria for Tuberculosis show conclusively that in those institutions where the proper hygienic discipline is rigidly enforced, of the various attendants, a very small percentage ever become infected, even after long terms of

service. It is unjust that Society should bring any hardship on one of its members unless he is a direct menace to the common weal, and phthisophobia is unnecessary, and works harm to the attempt to control the spread of the disease. There need not be any active quarantine against the consumptive, but he and all the members of his family should be carefully instructed in the hygiene of the disease, and unnecessary communication and visiting should be discouraged. When all cases of Tuberculosis are promptly reported to the proper authorities, then will our statistics be of great value and the study of the progress in treatment will be materially helped.

DUTIES OF THE COMMUNITY TO INMATES OF JAILS, PENITENTIARIES, ALMS-HOUSES AND OTHER PUBLIC INSTITUTIONS.

This really brings us face to face with a great question, yet it seems that its answer ought to be apparent. When, for the purposes of punishment or correction, or for the increased revenues which must accrue as a result of the economy of space and time, in our penitentiaries, jails, alms-houses and public works (especially factories), tubercular subjects are allowed to freely and unrestrainedly mingle with their fellows, we must naturally expect the "great white plague" to continue to reap its enormous harvest. The community has no right to throw an uncondemned man into a jail where he will come into closest relation with individuals suffering from any infectious disease. Many men are put in jail who are innocent of any transgression of the law, but if every incarcerated person were guilty of murder in the first degree, I doubt seriously if the ethical position in which the State is placed under such circumstances as above mentioned would be a pleasant one.

This Association has heard papers read by its members who were competent to judge, in which the stand was taken that our State should have a separate prison for consumptive convicts. At the Montgomery session, 1898, Dr. W. H. Blake, State Physician at that time, said (transactions M. A. S. A. 1898, pp. 536-9): "Among the convicts of Alabama, consumption prevails to an alarming degree, and the death-rate from this cause is on the increase. In Alabama, the record of deaths for State convicts covers a period of eighteen years. For the first half of this period, consumption caused 20.3 per cent. of the total mortality; for the last half it caused 42 per cent. Prison management in Alabama furnishes conditions specially favorable to the propagation of consumption. Convicts are not kept in separate cells, but from fifty to 100 are confined together in a single large cell. Con-

sumptive convicts, unless acutely ill, are confined in the same cells with non-consumptive ones."

Our distinguished ex-President, former Senator from Jefferson county, advocated with all the power of his strong personality the passage of his famous "Convict Bill" before our State Legislature several years ago (1896-7), in which bill a separate camp was to be provided for consumptive convicts.

My own personal experience in this matter leads me to add one point to Dr. Blake's statistics. No record is kept of those convicts who are constantly being set free from prison and who are tubercular at the time of their release, having been infected during their imprisonment. The number of these is considerable, and they go out into the State to scatter the infection. Thus the actual death-rate at the prison does not nearly cover the whole number of deaths directly resulting from infection occurring during confinement. The State's duty is too plain in this matter to be further spoken of.

BOVINE TUBERCULOSIS.

In July, 1901, Koch made the statement in a paper read before the British Congress of Tuberculosis, in London, that Human Tubercle Bacilli were not infectious for cattle. This statement was based on a series of experiments which had been made under his supervision. He also gave as his opinion that Bovine Tubercle Bacilli were non-infectious for man. Since that time his position has been vigorously attacked by Ravenel and Salmon in America, and they seem to have proven very conclusively that Koch's position was extreme and was founded on a remarkable paucity of facts. The question is still under consideration and which one is correct can only be fully determined by large clinical and postmortem observation. In the meantime it behooves us to take every precaution to limit the spread of Bovine Tuberculosis and to prohibit the sale of tuberculous milk and meat.

STATE SANATORIA FOR TUBERCULARS.

Tuberculosis finds its victims in every walk and station of life. Among the wealthy classes the State has no problem to solve unless it be their registration, for they can avail themselves of every opportunity that can be offered for recovery; but among the poor classes the people who are dependent upon their daily labors for their support, and with whom disability means privation and hardship, the State, in my opinion, does have a well defined duty. The hygienically untutored tubercular is a menace to society, and if he is dependent upon his wages or salary for his livelihood, in most cases is unable to get the best opportunities that modern scientific treatment offers for

cure. The present idea of the treatment of Tuberculosis may be summed up briefly as follows: Pure fresh air in abundance, properly selected food in sufficient quantity, correct personal hygiene, carefully regulated exercise, freedom from care and worry, and judicious administration of drugs. This is the ideal—we know that to a great number of consumptives, dependent upon their own crippled resources, its attainment is impossible. The bread-winner of the family is stricken with Tuberculosis, and it is often unrecognized until he is unable to perform his usual work. We see such cases frequently. What is the outcome? Too often the struggle is dragged out in a poorly furnished home, and other members of the family become infected. And thus the disease spreads. What is the State's duty to such individuals? The State should establish and maintain properly equipped Sanatoria for consumptives. These institutions need not be entirely charitable, for while they would of course take in many patients who would be unable to pay for the care that they received, they would also get many patients who could pay their actual expenses. Several States have already established such institutions, and they are now in successful operation. Massachusetts was the first State in the Union to establish a Sanatorium for consumptives. A careful study of the five annual reports which have been published by this institution shows that it is accomplishing a considerable amount of real good.

The effect of such an institution on the community is two-fold. It gives many cases an opportunity for cure which they could never have otherwise, and often returns to his labors the head of a family, who is able to support those dependent on him for some years at least—thus keeping many individuals out of alms-houses, etc., and again, the hygienic instruction which a patient gets in such a place is imparted by him to his neighbors, so that the cured or even improved individual becomes an apostle of tubercular hygiene, and his circle of friends and acquaintances profit by his instruction and example in sanitary living—thus lessening the risk of consumptives spreading the infection by carelessness born of ignorance.

The cost of establishing such an institution in our State ought not to be excessive, nor should its maintenance be burdensome. In Massachusetts, the patients who are unable to pay for their care are supported by the county from which they are sent, and this plan seems to be a good one. They have a regularly appointed Board of Medical Examiners who pass upon each case as to its suitability for admission, and they also are the visiting physicians to the sanatorium.

In Alabama the County Boards of Censors might be constituted as

an Examining Committee who should determine the eligibility of an applicant for admission. I believe that our Association should appoint a committee to carefully investigate the advisability of the State establishing one or more such sanatoria, and if they should decide favorably, our Association should try to have our Legislature provide for the same. Such a committee would have the plans and reports of institutions already in existence both in America and in England and on the continent for reference, and would be able to determine accurately the value to our commonwealth of the same.

There are other points that a discussion of my subject would easily cover, such as the instruction in hygiene and elementary Bacteriology in our public schools; the supervision of tenement houses by municipalities; the control of expectoration in public halls, on the street, and sidewalks; and many other things, but already the paper has been drawn out longer than it should have been, and I shall leave these matters to those who care to discuss the subject for their consideration.

APPENDICITIS.

By GEO. S. BROWN, M.D.,

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Of fifty-eight cases of appendicitis which I have operated upon four were fatal. I give herewith a brief analysis of the list with a somewhat more extended discussion of the details of operation and after treatment, together with a consideration of the complications and variations that are comprehended in the brief histories of my four fatal cases.

It is of interest to notice the successive and rapid steps in the evolution of the operation which has taken place in the last ten years. The majority of the earlier cases operated upon were extra-peritoneal abscesses. These were opened with the greatest caution and drained without any attempt being made to remove the appendix. When the abscess was intra-peritoneal, that is when there were no adhesions to the anterior abdominal wall, the pus was approached with the greatest caution, so fearful were we of breaking through the adhesions and contaminating the cavity with the pus, while now we are careful to break up all adhesions to insure drainage. E. G., in my first ten cases the appendix was removed in only three. In the second ten it was removed in seven. While in the last thirty-eight it was removed in thirty-five. The large proportion of these early cases in which the appendix was left was due in part to the fact that a great many physicians believed in the medical treatment of the disease and that operation was not justifiable until the abscess was large enough to have

made sure that extra-peritoneal adhesions had formed, the result being in such late cases that an attempt to remove the organ was made a difficult and dangerous operation. It was partly due too to the generally accepted conservative opinion of the day that it was better in cases of abscess of any considerable size to cautiously let out the pus in the endeavor to save life, than to be reckless of the adhesions that protected the general cavity. This was wise conservatism in its time and undoubtedly gave the best results that were then obtained, but has gradually given way until now we have come to be better acquainted with the physiology of the peritoneum and have more respect for, and at the same time know better the limitations of its powers. We know now that if the surface endothelium of the peritoneum has not been destroyed thorough cleansing will overcome the effects of contaminating pus even after it has been in the cavity for some hours. We know, in other words, how much the peritoneum will stand and how much it can be depended upon.

We know now that it is best in all cases, where the condition of the patient will permit it, and where the amount of pus is not so large, (as in those rare cases when the abscess half fills the abdominal cavity) but that there is reasonable chance to find the appendix, the adhesions should be broken up and the appendix searched for. When the pulse is rapid, and there have been chills, collapse or vomiting, in short when the signs of sepsis are marked, the appendix must be found and removed at almost hazard, because with such symptoms the appendix will be almost certainly gangrenous, and to leave it would mean almost certain death to the patient. We have not the same fear now of contaminating the general cavity. We know now that intra-peritoneal abscesses can rupture even an hour or two before operation and do no harm, provided the cavity is thoroughly cleaned out after the appendix has been removed and the infected areas well drained. While about fifteen per cent. of the cases in which the appendix is left give subsequent trouble removal of it is to be urged as a life saving measure in the present attack.

Of my fifty-eight cases operated upon, thirty-one had abscess. Twelve of these were extra-peritoneal, and nineteen were intra-peritoneal. Of the twelve cases of extra-peritoneal abscess the appendix was left nine times. In five of these nine the abscess was very large. The size of the abscess and the conservatism of the day account for this procedure. Of the nineteen cases of intra-peritoneal abscesses the appendix was left in the first three and removed in all the others.

Three extra-peritoneal, ten intra-peritoneal and three intra-appendi-

ceal abscesses had ruptured into the peritoneal cavity from two to sixteen hours before operation. Of these sixteen, three died. One case of sub-diaphragmatic abscess ruptured through the lung after operation which also proved fatal. Of the thirteen which recovered, four had well developed general peritonitis of six and eight hours standing. In these the cavity was full of sero-pus, and there was a great deal of lymph deposit on the serosa in the infected neighborhood. Two had the cavity full of cloudy serum, and the peritoneum presented a general angry red appearance with injected vessels on the right side. Of the three cases of ruptured appendiceal abscess, i. e., of a pus-containing appendix, one was a case of less than twenty-four hours standing, and the appendix had evidently ruptured about two hours before operation and, although the abdomen contained a large quantity of dark, offensive serum, the cavity was thoroughly cleansed and flushed and the wound closed without drainage and gave no after trouble. The second case was treated similarly but with a small drain. The third of these ruptured appendices was one of much interest and is one of the four fatal cases which I wish to report in detail.

This patient was a young man of twenty-two and was my twenty-second case. He was taken with his first and only attack at five o'clock one morning with a chill, vomiting, fever, pain and collapse. A physician was called at six in the afternoon, gave him morphin, and ordered him to the hospital. He was comfortable on his arrival, and continued so all the first part of the night. His expression was bad though, and his pulse and temperature continued to rise until at twelve the pulse was 140 and the temperature was 103, both having gone up rapidly during the last hour, during which he had a good deal of pain. Operation was done at twelve o'clock or about eighteen hours after the first symptom. The cavity was full of a dark coffee-colored offensive fluid which was seen still trickling out of a hole in the appendix itself. The peritoneum was a dull, lead color instead of the angry red that one always expects in peritonitis, and the veins and arteries were black. The conditions here were new to me, and I did not rightly interpret them until I made the autopsy two days later, when I found the conditions and appearance of the peritoneum exactly the same as at the time of the operation. The cavity was full of the same dark offensive fluid, and there were no adhesions whatever; in short there was no sign of any reaction of the peritoneum against the poison. The dark, offensive fluid came from the stump of the appendix as in the first instance, the sutures having given away because there was no adhesive inflammation to hold them. It was clear then that the rupture of the appendix had occurred early

in the morning when the attack came on and not as at first supposed—late that night, just a short time before the operation. Evidently the amount of poisonous fluid poured out from the bowel through the rupture in the appendix was so large in amount, or so virulent in quality (or both) as to so overwhelm the system with the sapraemia, that the blood, tissue cells and leucocytes made no fight at all, and the damage was probably all done in a short time. Cases of this sort, fortunately, are rare. In such cases, I should say, death is due to sapraemia. A somewhat less amount of the poison would have resulted in what is called a fulminating peritonitis. (It is hardly necessary to say that such a case must always be fatal if not relieved within a very short time after the rupture occurs.)

My second case operated upon also died of peritoneal infection. He was a man, twenty-four years old, who had been very ill with all the classical symptoms of a gangrenous appendix for three days; chills, nausea and vomiting, high temperature and pulse, and the stricken face of sapraemia was the record of the first few hours after he was brought to the hospital on the afternoon of the third day. The operation was postponed several hours waiting for his attending physician. At 10:00 p. m. his symptoms had all grown alarmingly worse. In the two hours preceding he had had a chill and a slight collapse, and a great deal of pain, and his pulse and temperature had rapidly risen to 140 and 104 respectively. Acting on my then belief, that the better plan in such cases was to let out the pus without making any effort to remove the appendix, I did so, and evacuated about a half pint of very foul pus, with a great deal of offensive gas. His symptoms were not relieved in the least and he died two days later of general peritonitis. Evidently the abscess had ruptured a short time before the operation was done, and had I (as I have done in all such cases since), made a larger incision, broken up all adhesions, removed the gangrenous appendix, washed out the cavity and thoroughly drained, the patient's life would have been saved. These two cases reported so far were the only ones I have lost through infection of the peritoneum, one of them being moribund when admitted.

The other two deaths are also distinct types of appendiceal disaster: The first of these (case No. 20), a man, aged 22, had a slight attack of pain with lingering tenderness ten days before I saw him. When I saw him he seemed to be slowly recovering from his attack, his pulse was 100 and temperature 100, and had only a slight lingering tenderness. I left him with the understanding that his physician would call me again if his improvement was not steady. I was called again twelve days later, and found him with a large tumor over the site of the

gall-bladder. This would have been misleading had it not been for the certainty of the original diagnosis. As it was we supposed (correctly) that the tumor was due to the fact that the pus from the appendix had traveled up the iliac fossa, behind, over and down in front of the liver. The abscess was incised and about a pint of pus drained off. The next day another opening was made below the point of the twelfth rib and a drain inserted. His symptoms were very much relieved now for two days. His temperature and pulse increased again, however, and tenderness over the liver, and the border of the organ was about an inch below the ribs. His breath became short, and he had an irritating cough and hiccough at times. The diagnosis of sub-diaphragmatic abscess was made and an aspirating needle was introduced in several directions but the pus could not be located. While preparations were being made for operating, the abscess ruptured into the lung, and it was hoped the relief would be complete and the operation was deferred. The discharge through the lung was so profuse, however, that it almost suffocated him, and the septic symptoms increased rapidly with the advent of all the signs of a septic pneumonia which ended in his death the day after the rupture and about the twenty-fifth day of the disease. The lesson to be drawn from this sacrifice is; first, that delaying operation in these terrible cases on account of apparent improvement, particularly if the trouble has been lingering for several days, is always wrong because it is often fatal. The physician in charge should have recognized the abscess before it had increased to such dimensions in the twelve days interval between the surgeon's visits. Secondly, the surgeon, when he opened the abscess in the first place, should have had the courage of his convictions and immediately opened the space between the diaphragm and the liver by resecting a rib and going through the pleural space, if necessary. No autopsy was obtained in this case, but the probability is that the appendix was situated behind the cecum in the iliac fossa. I have had several cases in this situation and the tendency in all was for the abscess to grow toward the liver. One of these, indeed, I found at the time of operation to have a second abscess well up between the liver and the costal wall; just such a case as this fatal one must have been at one stage of its upward growth. Those cases are rare on this account, and also because operation is not often delayed so long. Primarily, the very mildness of the infecting germ was, indirectly, the cause of this man's death. There was, I may say in closing this account, no sign whatever of general peritonitis.

The fourth death teaches the most important lesson of all because it was the type of a very common ending to many bad cases, and also

because it can, I believe, nearly always be avoided. This patient, a young lady of 23 years who had never been sick in her life, was taken ill on a Sunday with a chill, vomiting, severe pain and general tenderness, which soon subsided to the right iliac fossa. She was given purgatives at first which acted well, and she experienced much relief for the first two days. The purgatives were continued but would not act after the second day. She vomited them occasionally but as a rule retained them. By the fifth day, when I first saw her, all the symptoms had grown steadily worse, and at that time her temperature was 104 and pulse 140. Operation was done at once. She had a gangrenous appendix surrounded by an abscess which had ruptured into the general cavity a few hours at least before the operation. The cavity was full of cloudy serum and the whole peritoneal surface was angry and injected though there was no plastic deposit except in the immediate neighborhood of the appendix. The appendix was removed, the cavity flushed and drained, and she was returned to bed in about the same condition that she came on the table. As I had had a number of cases similar, but in worse condition recover, I was very hopeful that the outcome would be favorable. I left her that night in the care of a good nurse, feeling that she would do well, although it was ten miles in the country and it would not be possible for me to hear from her before morning. In the first part of the night she had some vomiting which the nurse supposed was due to the ether, as it no doubt was; it kept on however, and before morning became more frequent and bilious in character. I staid a great part of the next day and the vomiting seemed to get better, the temperature was only a hundred and the pulse was 120 and less. There was some tympany for which a tight binder had been applied. There was castor oil in the vomited matter and we hoped that she would soon be rid of all that and that then she would get better. After the second night of vomiting, however, it was plain that she could not get well, and, as the temperature had slowly risen to 102 and over, it was supposed that she had general peritonitis. She had extreme tympany, and the gulping, black vomit. She died of sepsis and exhaustion in the fourth day. The autopsy done immediately showed the infected side of the abdomen completely walled off and the drains apparently reaching all the infected parts. The general cavity was perfectly healthy looking, except in the immediate neighborhood of the adhesions. I believe that many fatal cases of so-called general peritonitis are cases of this kind. That is, death is due to exhaustion from vomiting caused by paralysis of the bowel and purgatives. The part of the bowel in the neighborhood of the infected area is always paralysed for several days after opera-

tion on one of these badly infected cases, because that is nature's way of limiting the spread of the infection. After operation the patient either has general peritonitis or he has not, according to whether or not the operation has given relief. If it is general peritonitis, purgatives cannot possibly do any good, while, if the infection is localized, withholding the purgatives can do no harm and their exhibition may be fatal. When purgatives are given at this stage one of three things happens; either the infection and consequently the paralysis are slight and the purgatives act after some delay and all is well, or, the purgatives set up a violent peristalsis which breaks up weak adhesions and causes a greater or less spreading of the infection, or it sets up a peristaltic wave, that going down to the adhesions finds them so strong, that the paralysis is so complete as to completely arrest it, the result being that a return wave is immediately sent back which causes the contents of the bowel to be carried upward into the stomach, which is followed by regurgitant vomiting. This vomiting may continue until the bowel is entirely empty of its irritating matter then cease and the patient recover, but on the other hand it may go on to a fatal termination. The symptoms are the same as in general peritonitis, and the cause of them and the conditions are the same, i. e., an inflamed serosa resulting in paralysis of the muscularis of the bowel with the consequent arrest of the peristaltic wave and the distention of the bowel with gas. We can avoid this accident, I think, most surely by, in the first place, avoiding all forms of purgatives and food both before and after the operation, in all cases of infection of the peritoneum and substituting opium and a tight abdominal binder, thus co-operating with nature instead of opposing her, and in the second place by practicing prolonged irrigation of the stomach through a tube until the stomach and bowel are empty of the food and purgatives that cause the trouble.

It is most important after abdominal operations in badly infected cases, particularly in infected appendicitis cases, that the peristaltic action of the healthy portion of the bowel should be in abeyance until the paralysed bowel shows some sign of itself, of waking up from the paralysed condition caused by the inflammation, because, when this takes place, as indicated by the passage of a little gas, or at least a feeling that gas is trying to pass, it is an indication that the inflammatory process has about spent itself, that the infected area is walled off and is draining, and that the patient will recover. A small stimulating enema now will probably be successful in making more gas pass, thus affording the patient much relief. After this, small doses of salts cautiously given will very likely go through in a few hours, and after

that no further trouble will be experienced. In short, I am arguing that the condition of paralysis should be most carefully respected, and I am inclined to emphasize it because there is a wide spread belief that this paralysis can be cured by purgatives, which to my knowledge is a most fatal fallacy. In mild cases of appendicitis, purgatives are given and the attack often passes off and the purgative gets the credit for the cure, and the gentleman who prescribed it keeps on using it in other cases until he loses one that should have been operated upon. The fact is, that in all cases opium, if anything, should be given and operation done in all of them. If there is any inflammation there to amount to anything purgatives will not move the bowels, and if they are persisted in there is a strong chance that they will set up a regurgitant vomiting which may prove fatal. This is a sad position held by the medical man because it costs many lives each year. It is particularly sad because he gets his cue from the surgeon who practices after operation that which he regards as bad before.

There is one other accident which may happen and which is almost if not quite inexcusable. I refer to the death or post-operative abscess due to closing an appendiceal wound without drainage.

A few years ago, when the principles began to be better understood, and the results of appendicitis operations began to be correspondingly gratifying, (results, by the way, which were due nine times out of ten to thorough drainage) it was found that drainage was not necessary in those mild cases where there was slight if any local infection. With this discovery, of course, "faddists" rushed in and tried to make the rank and file of surgeons believe that they were operating successfully in all cases by dispensing with drainage altogether. This assertion is, of course, a gross exaggeration of what their daily practice really is, as there is abundant evidence of eye witnesses to prove. While all this wild talk does not seem to affect the practice of the "faddists" themselves it does do a great deal of actual murder at the hands of the occasional operators who feel that they must follow the lead of the leaders most talked about and quoted. I, myself, have never used a drain that did the least harm, except in one instance, while I have used them many times with the happiest results in cases that would otherwise have surely proved fatal. I am sure that in infected appendiceal wounds closure without drainage will cause, at least, a few cases of general peritonitis, and, at least, a few cases of post-operative abscess which will have to be opened and drained.

I will close this paper with a short account of my single case of post-operative abscess. While the patient did not die she came so near it that the case may well be made to represent one of the most terrible

complications that ever falls to the lot of the surgeon to face: Mrs. C., who gave a history of two mild attacks of appendicitis, and one severe one during the preceding year, was taken sick at six p. m., April 26, 1900, with severe colicky pains which lasted all night. A physician was called at six a. m. of the 27th, who gave her morphia. The symptoms were all better on that day, except that she had a little fever and a suspiciously rapid pulse. At six a. m., of the second day she had a chill, followed by marked collapse and cynosis, but from which she quickly rallied. She had another similar attack during which her pulse was 160 and temperature 103.5. She again quickly rallied, and when I was called in consultation at seven-thirty p. m., the pulse was 120 and temperature 103. Such symptoms are probably always indicative of a gangrenous appendix, and such a diagnosis was given and immediate operation advised. She was removed to the hospital and operation done at midnight. A somewhat enlarged, but non-adherent appendix was removed; there was no localized peritonitis, not even of the serosa of the appendix itself. Although the mucus membrane of the appendix was gangrenous, there seemed to be no infection on the outside of the appendix at all, and it was thought safe to close the wound without drainage which was done. After the operation the temperature and pulse remained at nearly normal for five days. On the sixth day the temperature was 100 and pulse 100. On the seventh day in the evening temperature 102, pulse 110, and a stitch abscess containing foul pus was found at the upper angle of the wound and evacuated. (Owing to the patient being very fat this was the pendent end of the wound.) The next morning, (eighth day after operation) the temperature was down but was up again that evening to 102. The wound was opened throughout its extent and closely examined but could not be found to have any communication with the cavity. At this time the patient began to complain of a pain under the right costal cartilages, and on the ninth day she had a most alarming collapse, and that evening at nine her temperature was 104 and pulse could not be counted, it was so fast and weak. I was so firmly of the opinion that the trouble was caused by the infection traveling up the iliac fossa that, though the condition was most desperate, I determined, in the face of the gloomy predictions of my associates, to try to reach the trouble at any hazard. She was carried to the operating table almost insensible, and while salt solution was being given under both breasts, I rapidly prolonged the incision from the upper end down through the lumbar muscle and opened the peritoneum behind the colon, here I found greenish lymph deposit. Pushing the finger up through the newly formed adhesions toward the gall bladder I found the pus just as I expected to, close up

under the liver. The patient now had no pulse at the wrist, and the respiration could hardly be detected. Ether was given for only a few minutes in the beginning and amounted to no anaesthesia at all. About two hours elapsed before the patient rallied enough to be removed to her bed. She recovered rapidly from the poison, but it was a long time before the wound was healed. The gauze drain, which was pushed up against the gall bladder, did not come away for two weeks, and then it left a fistula which discharged bile for three weeks or more before it finally healed. I think this secondary infection was caused by my getting the lips of the abdominal incision infected at the time of cutting off the appendix, though it is difficult to understand just how the pus could have made its way into the cavity as late as it seemed to. A drain would, at any rate, have obviated all the trouble. If, in such cases, the wound is all stitched up except for a short space in the middle for a small rubber covered drain, this drain can be removed in forty-eight hours and even stitch abscess be avoided altogether. Such a drain carries off the post-operative fluids, both of the wound and of the abdominal cavity. At the worst the use of it can only delay convalescence a few days, and in many cases will actually save life. In the case just reported, the patient had been watched very closely on account of the early symptoms which had been particularly violent, and also because the mucous membrane of the appendix was found to be gangrenous. Drainage was dispensed with, however, because the peritoneum did not seem to be infected at any point. The infection was doubtless caused by the contamination of the abdominal wound at the time of cutting off the appendix. The wound having been closed with through and through stitches, the pus was enabled to make its way into the cavity easier than towards the outside. Had the peritoneum been closed separately, and a few strands of capillary drains of some kind been placed in the depths of the wound outside the peritoneum, the trouble would probably have been obviated, and this leads me to confess that I believe that the abdominal wound it is that more often needs to be drained than the abdominal cavity itself, still, if any drain is to be used at all, it can do no harm to use one that will drain both the wound and the cavity. We conclude therefore, that there are some exceptions to the rule that: "It is best, as a rule, to dispense with drainage after appendicectomies." Remembering too that, while this rendering of the rule is less dramatic perhaps, it is also less dangerous than the happy ebullitions of the phrase makers, will keep us on our guard against the teachings of the light hearted who preach one thing and practice another, and such of their products as e. g., "Throw away your gauze" and "Never use drains after appendicectomies," as well as that perfect-

ly killing little aphorism "When in doubt don't drain," we will take with a certain reservation which will surely redound to our credit in our account with suffering humanity.

WHAT PRECAUTIONS SHOULD BE TAKEN TO PREVENT THE SPREAD OF INFECTIOUS DISEASES?*

By GLENN ANDREWS, M.D.,

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The efforts at protection against the devastation created by disease among mankind dates back to the days of inspired history. Moses, the great law-giver, specifically instructed the Israelites in certain sanitary measures and these doctrines were so thoroughly impressed and the wisdom of them so comprehended that the orthodox Jew of today, in part at least, observes them.

The fear of the dire effects from the spread of contagion has been noted in all ages and we see that different means have been employed, from age to age, to prevent its dissemination according to the enlightenment and religious beliefs of the masses. In one community libations were poured out or offerings made to the Deity who was supposed to be responsible for such afflictions. In another all manner of self-imposed punishments were resorted to, among some sorceries were practiced, and still others imbued with Christian faith, made supplications with prayers and fasting. Many disgusting remedies have been called into use—excrement of crows, dogs and other beasts have been used to eradicate and destroy certain humors of the blood, and even today those of us who have patients to treat occasionally see distressing cases of gonorrhoeal ophthalmia due to the sovereign, never-failing remedy, human urine being applied to relieve a simple conjunctivitis.

A degree of superstition has shrouded medicine always, and hence, it has afforded a fertile field for charlatanry (?) and quackery to sow deceit and deviltry.

Man, ever ready to be gulled and especially prone to place his very existence in the hands of ignorance in order to satisfy a fancy or save a few pence, has done much by accepting such service to retard and delay the era of true scientific enlightenment as to the causes, relief and prevention of many diseases. From time to time, however, a bright star of promise has shown out amid the darkness and by gathering fragments here and there medicine has at last builded a structure

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upon a basis of common sense and rationalism from which it cannot be shaken, and which is being recognized by all thinking people.

The Florentine quarantine, established about the 15th century, was the first great step toward the prevention of epidemic infections spreading from one locality to another; and, in passing, I will say that such epidemic diseases as Typhus fever, yellow fever, Bubonic plague, epidemic cerebro-spinal meningitis, and cholera, which do not occur endemically in this country, can be, and should be, kept from our shores by a systematic quarantine properly managed at all the sea ports of the country and by this government having accredited sanitary officers at all foreign ports of importance from which such infections are liable to come.

Near the close of the 18th century Lady Montague introduced from Turkey into England the practice of direct inoculation with the virus of small-pox all unprotected persons. And immediately following this, in the year 1798, Jenner announced his great discovery of vaccination. These wonderful advancements, however, were allowed to slumber until the fearful plague swept over England in 1849, followed so soon by the terrible experiences of the Crimea.

Scientists realized for the first time the specific nature of the cause of disease and set about methodically and untiringly to discover such causes and seek for a curative and preventive agent. Marvelous results soon crowned these efforts and Pasteur, Koch, Troussant and others by indisputable evidence have proved that certain diseases are due to individual micro organisms or germs. This much established, specific curative and preventive remedies were sought out, and have in some diseases been established to such extent as to lend hope that at no distant day many so-called infectious diseases will be shorn of all terror, if not entirely eradicated. The vast work done in the study of hygiene during the last half century has advanced it from a mere appendage of medical learning to a highly important branch of scientific knowledge.

A physician of today must be prepared to not only give the cause of a disease, but how to remedy it and stamp it out of existence and prevent its further dissemination. A brief paper of this character, from necessity must treat of so vast a subject in a restricted sense, and hence, only those maladies will be considered which are recognized as infectious or contagious diseases, which occur epidemically or are widely disseminated.

Recent research has shown, in many instances, both the cause of certain diseases and the way in which they are transmitted from one person to another.

The value of this is inestimable. What precautions, then, must be used to prevent the spread of infectious diseases?

Every incorporated municipality should exercise close supervision over the general water supply, sewage systems, both sanitary and for storm and waste water, should have systematic inspection of all public and private premises, look carefully to the cleanliness of streets and alleys, and should be stringent in such means as are necessary to keep all surface closets and cess pools, where ever tolerated, in as clean condition as possible and to guard against contamination of drinking water from such sources. Shallow wells should not be permitted in crowded communities. A proper disposal of garbage and refuse is essential. All practicing physicians and friends of patients suffering from infectious diseases should be required, under penalty of law for failure to do so, to report such sickness to the proper health authorities. The premises where the patient resides must be placarded at once and all children in attendance at school from such places should be required to absent themselves from school through a given period of detention.

All meats offered for market should be inspected by competent officials and careful supervision had over the public slaughter houses.

All dairies should be closely inspected and the water and food supply of cattle which furnish dairy products for public consumption should be carefully supervised. The cows should be physically examined and tested with tuberculin for tuberculosis. A rigid exclusion from the herd of all cattle not meeting prescribed requirements should be enforced. A quantitative and qualitative analysis of the milk should be made from time to time.

A general supervision over the public schools is very important. Each applicant should be required to present a certificate of successful vaccination before being enrolled as a pupil. All pupils suffering from infectious diseases should be excluded from school as well as those who have been exposed to such infection for a sufficient length of time to guard against disseminating the malady.

In sparsely settled communities and rural districts the physician should exercise care and diligence in the isolation of cases of infectious troubles, and must be so cautious in having all emanations from the sick chamber thoroughly disinfected and disposed of as to preclude the possibility of contaminating the water or dairy supply.

Certain general rules apply to the management of all infectious epidemic diseases and will be briefly considered under one head.

The room of the patient should be as remote as possible from the sleeping apartments of others occupying the house. Complete isola-

tion must be enforced, no one being allowed access to the chamber except the physician and regular designated attendants. There should be the freest possible admission of sun light and fresh air, draughts being avoided. Unnecessary furniture, tapestries, carpets, rugs, curtains, clothing, etc, should be removed, only shades to prevent the glare being allowed over the windows. As nearly as possible a uniform degree of heat must be maintained. The floor should be sprinkled and swept each day, and window-facings, mantels, furniture and all horizontal surfaces wiped off with cloths wrung out in a disinfectant solution. The sputa is to be received into cups containing a disinfectant solution, and the dejecta passed into vessels containing a similar mixture and thrown into sanitary closets. In case such stools have to be disposed of by being thrown into cess pools the greatest care must be taken to thoroughly expose them to disinfectants before emptying the vessels and careful disinfection of the cess pool must be kept up daily. When advisable frequent sponging of the patient's body with disinfectant lotions is grateful and those suffering from eruptive manifestations should have the skin anointed with carbolized oil or some other oleaginous disinfectant. This not only alleviates the irritation of the skin, but prevents dry particles or scales from being wafted about. The body and bed linen must be kept scrupulously clean and so soon as removed from the patient or bed must be immersed in a strong disinfectant solution for at least two hours and then removed from the room and boiled. A separate set of eating utensils should be provided for the patient and these must be scalded after being used. Refuse particles of food should be either thrown into a disinfectant or burned.

Handkerchiefs, napkins, towels and such like must be treated in the same way as bed linen. When the infectious principle lies largely in the air tracts pieces of cloth had better be supplied the patient instead of handkerchiefs and then burned after use.

The nurse should wear a cotton over suit, cap and canvass slippers, care must be exercised in always having her hands clean. Before leaving the patient's room her outer garments should be changed and her hands, face and head carefully cleansed and disinfected. She should mingle with those susceptible of contracting the disease as little as possible.

A class of diseases, notably typhoid fever, cholera, primary intestinal tuberculosis, and certain dysenteries gain entrance to the human system through the alimentary tract. The micro-organism is conveyed either through water, milk or other food. It is equally certain that the germs producing these maladies are passed from the pa-

tient only in the vomited and alvine discharges. Hence, the greatest precaution must be taken in thoroughly disinfecting all emanations from these patients. The discharges should be passed into strong disinfectant solutions and allowed to soak for not less than two hours. If the stools are compact they should be broken up and thoroughly mixed with the disinfectant, where no sanitary closet exists the greatest caution must be taken in their proper disposal. Under no condition should they be thrown in cess pools or privies if possible to avoid it, but should be buried in trenches several feet deep and covered with dry earth, a liberal supply of lime wash having been intermixed with the discharges. There must be no possible chance of contaminating the water supply of the habitation or settlement from such repository. If from necessity such discharges are thrown into cess pools or privies these places must be daily dealt with as hereinafter indicated.

In communities where diseases of the above class prevail all drinking water should be boiled. Domestic filters are of little value in protecting against disease and must be carefully guarded or they will become a source of trouble. Attendants upon these patients must keep their hands well cleansed. These precautionary measures must be observed until a bacteriological examination shows the absence of the specific germ of the disease.

In communities where cholera prevails all cases of diarrhoea should be regarded suspiciously and treated accordingly.

Hoffkein has practiced of late in India a system of protective inoculation against typhoid fever, cholera and Bubonic plague with sufficient success to warrant further and more general experiments.

Small-pox, chicken-pox, measles, german measles, and scarlet fever are all highly contagious. The exact way in which they gain entrance into the system is not understood. However, the same precautions as before noted should be observed in the management of these maladies. The strictest isolation must be enforced against patients suffering from small-pox, scarlet fever and measles. The confinement should last until all desquamation has ceased and there is no longer evidence of sore throat or discharge from the eyes, ears or nose. Thorough vaccination will stop small-pox and it should be vigorously practiced in all communities where the disease appears.

The diphtheritic germs enters the human system by the air passages of by infected membrane coming in contact with exposed mucous or denuded surfaces. Great care, therefore, must be practiced by physicians and attendants in examining these sufferers. Those who have been exposed to possible infection should be at once inoculated with anti-toxin serum and kept under close surveillance for at least two

weeks. Rigid antiseptic regulations must be observed in the control of these patients and especial care must be taken in having the sputa collected in cups containing strong disinfectant fluids.

Acute croupous pneumonia, whooping cough and influenza are contracted by means not understood at present; but they are infectious and probably contagious. The ejecta from all the air passages of those suffering from these diseases should be thoroughly disinfected, as should be the vomit of all whooping cough subjects. It is impossible to isolate or confine pertussis or influenza patients for a sufficient length of time to prevent the dissemination of these diseases. However, children suffering from whooping cough must be kept from school and prevented from mingling with those who are not immune.

Whooping cough and measles cause more deaths among children directly and indirectly in thickly populated districts than all other known diseases. Hence, stringent measures, based upon common sense principles, should govern the management of these little sufferers.

The unfortunate sufferer from tuberculosis must be taught the necessity of self-management. Heredity plays its part in the transmission of this fearful curse, at least in the weakened condition of the offspring. These little fellows should be watched carefully from infancy and placed under the best possible environment. Persons infected with tuberculosis must be taught the danger of imparting the disease to others and instructed carefully as to the best means to employ to prevent this. These subjects must occupy separate sleeping apartments and under no condition must they share a common bed with an unprotected person. All discharges from them should be thoroughly disinfected, this being especially enforced against the sputa. Patients must be instructed never to spit elsewhere than into a cup of disinfectant solution. The bed chamber or sick room should be scrupulously kept along the lines before suggested. Koch's discoveries in regard to the efficacy of tuberculin as a diagnostic, curative and preventive agent promises much and we are led to hope that the time is not far distant when a sovereign remedy will be given us against this, the greatest curse of mankind.

As a result of experiments by Grassi, Felletti, and other Italian observers, the malarial plasmodium was shown to be transmitted by bites of certain mosquitoes. In no instance could they produce the disease through the medium of the alimentary tract, though subjects were given freely of marsh water to drink and similar water was used as enemata.

Blood drawn from the veins of a man known to be suffering from

malaria was drunk by one of the physicians without producing the slightest symptom of malarial paroxysm. The impression prevailed among them, however, that the disease was conveyed through the respiratory passages, but they failed to confirm this belief. It was demonstrated conclusively, though, that the infected mosquito conveyed the disease germ. Similar experiments have been conducted on a very extensive, exhaustive and convincing scale by officers of the United States Marine Hospital Service and the United States Army in Cuba during the past three years in regard to the transmission of yellow fever. The official reports of these physicians to the government carry great weight and force and completely uproot all past theories as to the dissemination of yellow fever. After careful and most conclusive tests covering a long period of time and throwing every precaution about their work in order to obviate possible mistakes, they conclude that the disease is not conveyed by fomites and is not atmospheric, and, so far, have been unable to discover any way of transmission of the disease except by the bites of a certain genus of mosquito known to have been infected by the disease. It must be kept in mind that the germ of these diseases does not originate in the mosquito, but is taken into their system in blood sucked from a person suffering from the disease, the germ undergoing a complete metamorphosis and development within the mosquito and is discharged days after into some other person by the sting of the insect. The entire and complete eradication of yellow fever from Havana during the past year, not a case having occurred there during the past three or four months, as a result of sanitary measures being taken to destroy mosquitoes at places of known infection, and to prevent their germination, and a system of isolation of yellow fever patients guarding them against possible bites by mosquitoes argues too much to pass the subject by lightly. The prophylaxis against malarial and yellow fevers consists, of course, in the observance of the same general sanitary laws given before. All apertures opening into the room should be completely protected by wire screens, and care must be taken to keep the room cleanly, all emanations from the patient being properly disinfected. The premises should be thoroughly cleaned and no vessels or contrivance allowed to remain in which water could collect. Perfect drainage must be enforced and any water which has been standing should be disinfected before being thrown out. If the water for family use is collected in cisterns they must be closely watched and prevented from giving life to these insects. In other words, accepting the mosquito as the only known source of transmission of these two diseases, a war of extermination must be practiced against them whenever a case of

such illness occurs in a community. Remembering the patient is the true source of infection and the mosquito only the vehicle for transmission, it is of the greatest importance to render such patients innocuous. Malarial patients must be thoroughly cinchonized and after the patient is recovered from the active manifestations of the disease a mild degree of cinchonism must be maintained for several weeks or until the microscopist fails to reveal the plasmodium malariae in the blood. Unfortunately it is not yet definitely accepted what the true germ of yellow fever is and there is no known specific. However, the patient should be kept properly protected against exposure to mosquitoes until completely recovered.

Convalescents from an infectious disease should be given a full bath and the head thoroughly scrubbed and cleaned and should be provided with fresh clothing before being allowed to mingle with other people.

In case of death from such disease the body should be wrapped in a sheet wrung out in a one to one thousand (1:1000) bichloride of mercury solution and placed in the casket as soon as practicable and the casket closed, not to again be opened. Funerals of these unfortunates should be as early as practicable and should be private. Public conveyances used on such occasions should be cleansed and aired before being again put into service.

The following table will give approximately the time which should be required to elapse before a child who has suffered from one of these maladies, or who has been exposed to possible infection, should be allowed to re-enter school, viz.:

1. Persons affected with diphtheria (membranous croup), measles, scarlet fever, small pox, (or varioloid), whooping cough, mumps, or contagious ophthalmia, must be excluded from school until official permission is given by proper health authority for their readmission.

2. Persons living in the family or house where such a case occurs are excluded until similar permission is given, except in cases of whooping cough or mumps, where such persons have previously had these diseases, they may continue at school.

3. This permission should not be given until sufficient time has elapsed since the occurrence of the last case, to insure safety; nor until the premises have been disinfected under the direction of the sanitary officer.

4. If a child suffering from one of the above diseases attends school, the premises of the school must be disinfected under the direction of the sanitary officer.

Time when children may return to school who have suffered from the following diseases:

Scarlet Fever.—Six weeks after convalescing, if all desquamation has completely ceased, and there is no appearance of sore throat.

Measles.—Two weeks after convalescing, if all desquamation and cough have ceased.

Diphtheria.—Four weeks after all symptoms have abated; there being no longer any form of sore throat nor any kind of discharge from the throat, nose, ears, eyes, etc., and no albuminuria, and the microscope fails to reveal the Klebs-Loeffler bacillus.

Small Pox.—Eight weeks, provided every scab has fallen and cicatrices have healed.

Whooping Cough.—Eight weeks, provided the characteristic, spasmodic cough and whooping have ceased, or if all cough has completely passed away.

Mumps.—Four weeks from commencement, if all swelling have passed away.

German Measles.—Three weeks.

Chicken Pox.—Until every scab has fallen and cicatrices have healed

Contagious Ophthalmia.—Until there has been a complete absence of discharge for four weeks, or until the inner surfaces of the eyelids are found, on inspection, to be free from granulations.

Period of time required to elapse before a pupil can return to school after exposure to the following diseases:

Diphtheria, Scarlatina, Measles, Chicken-pox, fourteen days.

Small Pox, Mumps, Whooping Cough, twenty-one days.

German Measles, six days.

Disinfection of the premises which have been occupied by this class of sufferers is of vast importance and a knowledge of the relative value of chemicals used for this purpose is necessary. Sulphur dioxide and Formalin are in most general use as fumigants. The room being closely sealed by chinking all cracks with cotton and pasting paper over all apertures. Articles of clothing, bedding, etc., should be loosely hung about the room. When sulphur is used three to five pounds must be burned to each one thousand cubic feet of air space. Before it is ignited the floor and walls of the room should be sprinkled with water, since dry sulphur fumes have but slight germicidal powers.

Formalin should be reduced to gas, one pound of Formaldehyde being allowed to each 1000 or 1200 cubic feet of air space. The room must remain closed for 18 to 24 hours under sulphur fumes and from 6 to 8 when Formaldehyde is used. Then it must be thrown wide open and exposed to the freest circulation of fresh air for several days. A solution of ammonia thrown into the room when first opened will

readily destroy the irritating and unpleasant odor of formalin. When such provision is at hand articles of bedding, rugs, clothing, etc., should be disinfected by steam heat. In the absence of such contrivance, the mattresses and pillows had best be burned, especially if the patient has suffered from one of the graver maladies. All articles of bedding, clothing, etc., which can be boiled, should be so treated. A thorough airing of all articles, after being cleaned, in the sun light is advantageous. A 1:1000 to 1:5000 bichloride of mercury solution or a 2 per cent. solution of carbolic acid is a suitable preparation with which to scrub the floors, furniture and facings and to wash down the walls. For disinfecting the sputa and stools twice the quantity in bulk of the infected matter of either a 5 per cent. solution of carbolic acid or a one per cent. solution of chloride of lime is suitable. Bichloride of mercury, by forming albuminoids with such excreta, is slow in its process of disinfection. When used, a small quantity of common salt being added, a 1:1000 solution will be sufficient strength. In the absence of all chemical disinfectants pour three or four times the volume of boiling water over the dejecta. Equal parts of concentrated sulphuric acid and crude carbolic acid can be used in the same strength as the carbolic acid solution and is much cheaper. Frequent flushing with water, with the occasional use of either the carbolic acid or chloride of lime solution, will suffice for urinals and sanitary closets. For privies and cess pools freshly slacked lime or a solution of sulphate of iron in a proportion of about three pounds of iron to the gallon of water, should be used daily. The lime wash should be in strength about one of lime to four parts of water, one-half gallon being allowed to each person using the closet. This solution is useful in washing down the walls of the former infected rooms, cellars, stables, etc. In communities where typhoid fever, cholera, dysentery prevail, careful investigation must be made of the water supply and all drinking water must be boiled if there is reason to suspect infection from that source.

The great progress made in hygienic medicine during the past few years lends hope and reasonable assurance that the day is not distant when the specific cause of many of the infectious diseases will be recognized and the way of disseminating discovered and that through serum therapy a curative and preventive agent will be provided.

Too great credit and praise can not be bestowed upon the heroic physicians who have adopted Finlay's ideas in Cuba and proven so much in regard to the dissemination of yellow fever. It strips this monster of much of its terror and gives earnest to the hope and belief that the days of yellow fever epidemics in this country are at an end.

Selected Articles.

THE PLAGE OF DRUGS IN THE TREATMENT OF STOMACH TROUBLES.

By BOARDMAN REED, M.D.,

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The author holds that the majority of medicines administered empirically in cases of so-called dyspepsia, probably do more harm than good. Even after an accurate determination of the actual existing pathologic condition by a thorough external examination of the abdomen, an uranalysis and a chemical and microscopic examination of the stomach contents, it is often found that medicines are less useful than hygienic or mechanical measures, such as a carefully selected diet, a free use of pure drinking water, exercises, massage, electricity, etc. Indigestion may result directly or indirectly from imprudent eating and imperfect mastication, but a large proportion of complaints of pain or discomfort in the stomach are either reflex phenomena or functional disturbances, the indirect consequences of unhygienic habits of work or play. Inordinate mental or nervous strain results in persons who have long overworked or over-dissipated with the help of stimulants, including not only the alcoholic beverages, but also strong coffee and tea. The injury to the nervous system from these and other excesses, reacts very injuriously upon the digestive functions, and a considerable portion of so-called dyspeptic troubles are traceable to such excesses. In all these cases especially, drugs should play a subordinate role, particularly when stimulants and nerve tonics have been already abused, as is so often the case. The indication here is to get rid of the cause; then rest and time for recuperation. Much help can also be obtained from a life in the open air, plenty of natural sleep, nourishing food, change of climate sometimes, and often the mechanical methods of treatment. The over-ambitious exhausted professional or business man must take a trip away, or in the worst cases, a rest cure. Many cases characterized by headache, insomnia, nausea, vomiting, and severe gastric pain, will all yield readily to such hygienic measures, especially when no organic basis for such symptoms can be found in the digestive tract. When one or both of an engaged couple suffer from gastric symptoms of nervous origin, they should be separated until the wedding day; and similar symptoms in married people are often the result of injurious methods of trying to avoid offspring. But while gastric

neurasthenia is much more amenable to treatment by the hygienic and mechanical measures above mentioned than by drugs, a very careful use of certain well-selected remedies can often do good, after examinations of the secretions and excretions. Small doses of the bromides, the hypophosphites, the glycerophosphates, dilute phosphoric acid, and the preparations of iron, zinc, arsenic, silver and gold are among the remedies which can often be so used with advantage, except in cases where some such remedies have already been long administered before for the reprehensible purpose of enabling the patient to go on overdoing, or to persevere in violating nature's laws in other ways. When these or other drugs are administered in such cases, the only safe rule is to begin with minute doses and gradually increase if necessary, always being content with the smallest that will produce the desired effect.

In diseases that really involve the stomach, there is frequently a place for drugs, and in certain of them a very important one, when we have learned exactly in what way the organ is affected. Guessing at the diagnosis is especially condemned, and the fact is emphasized that even in cases where it may seem impracticable to use any intragastric instrument, very much important information can be obtained by an expert external examination of the abdomen, particularly with regard to the size, position and motor power of the stomach, as well as the fixity of the kidneys, the position, sensitiveness and size of the colon, etc. When the gastric secretion is excessive, as in simple hyperchlorhydria, in Reichmann's Disease, and in gastrosynsis, the administration of alkalies is generally necessary, and often in very large doses combined with small or moderate doses of some preparation of belladonna. In acid gastric catarrh, or round ulcer of the stomach, with such a hypersecretion, the same treatment is necessary, plus lavage in the former and rest in bed in case of ulcer, besides rectal feeding for a week or two, with later milk diet.

In the opposite condition of a deficient secretion of the gastric juice, especially of the HCL—such as obtains generally in old cases of chronic gastric catarrh of the atonic type, and even also in some cases of chronic nerve exhaustion of long standing—an entirely opposite line of treatment is necessary. In many of these cases nothing effects such prompt beneficial results as the administration of the officinal dilute HCL in doses of from 5 to 30 drops, combined usually with pepsin.

Experience demonstrates also that very large doses, and even in fact moderate doses, sometimes markedly disagree with stomachs which careful tests show to be greatly in need of the remedy. A burning pain is often produced by it in such over-sensitive stomachs, and it is necessary, therefore, in these cases, to administer it a little at a time.

The appropriate dose should be added to half a tumbler of water and taken in sips every few minutes during the hour following each meal. In these cases, the bitter tonics also, especially *nux vomica*, *quassia*, *colombo*, *condurango*, etc., may do good.

Massage of the abdomen and also exercises for the trunk muscles, such as body bendings, twistings, etc., are non-medicinal measures which help to restore the secretion of the gastric juice when the peptic glands have been impaired but not destroyed. When the HCL and pepsin, as well as the rennet ferment are entirely wanting, as in gastric atrophy, it is generally best to abandon all efforts to promote peptic digestion and administer full doses of a good preparation of pancreas with an alkali.

In atrophy, too, strychnin may be useful to assist in overcoming any coincident deficient motor or propulsive power, though gymnastics, massage, hydrotherapy, electricity, and especially intragastric faradism, will any one of them as a rule accomplish more in such atonic conditions, as also in dilatation of the stomach from atonic causes.

Dilatation may also result from pyloric cramp, usually dependent upon the combination of a hyperesthetic mucous membrane with a very excessive secretion of HCL. In this condition, and also in gastralgia from excessive HCL or from an unknown cause, it is proper to administer soda, potash or magnesia, in full doses, and, if necessary, at short intervals until relief, so as to neutralize beyond question all the free acid of any kind in the stomach; also belladonna for both its depressing effect upon the secretion of HCL and for its antispasmodic action. A course of arsenic may further be given for its specific nerve and antineuralgic action, though sometimes phosphorus or some other tonic will do as well, or better. This line of medication will generally be found more effective than opiates, which increase secondarily the secretion of the peptic glands, besides stopping the bowels. For the graver forms of dilatation due to tumors in or near the pylorus, surgical intervention alone can be effective, though lavage with antiseptics may palliate for awhile.

As to gastritis in the acute form, after putting the patient to bed, stopping all food and allowing water in small frequent sips only, no medicines are really required as a rule, except when necessary to open the bowels. Then 1.10 to 1.3 grain doses of calomel every half hour, or hour, till effect, will do more at first than anything else to hasten the subsidence of the nausea and vomiting, except a warm wet compress over the stomach, externally and small pieces of ice internally. When such an attack persists after the calomel has acted, a mixture of bismuth, 5 to 10 grains, with 1-4 to 1-2 drop doses of carbolic acid flavored with peppermint frequently repeated, is very effective.

In chronic atonic gastric catarrh the bismuth and carbolic acid mixture will accomplish generally as much as any remedy administered per os, but lavage every day or two with combination of soda and common salt in the first wash water (a teaspoonful of each to the quart), followed with a weak solution of alum (dram 1-2 to the quart), silver nitrate (grains 10 to 15 to the pint), or other antiseptic astringent, can do still more in skilled hands; and the diet is all important. These solutions for lavage should be followed by washing out with a pint at least of plain warm water, and, in the case of a silver salt, with a solution of table salt.

Tumors of the stomach are always cases for the surgeon, except when malignant growths have progressed too far before discovered. In the time to come this will less frequently happen, because physicians will in suspicious stomach cases obtain expert counsel at a stage of the growth when the subsequent calling in of the surgeon will not be in vain. In non-operable cases of cancer or sarcome the main reliance will be on opium. Lavage with antiseptics will prolong life and lessen the misery when the pylorus is involved with resulting dilatation.

In displacements of the stomach, unless the organ has been pulled down by a morbid growth, there is usually no need of surgery. Strychnin and diet will do something; abdominal supports, gymnastics, massage, electricity and hydrotherapy can do very much.

PHARMACEUTICAL PREPARATIONS.

Editor Alabama Medical Journal: There is no more fruitful source of congratulation to the practicing physician of this day than the admirable preparations which come to them from the leading manufacturing chemists of our metropolitan cities in the United States. I graduated in medicine in the South Carolina Medical College in the class of 1856 and have for the past forty-five years been a close observer of the progress made in pharmacy and in the chemical combinations of the remedies which for all that time have been used with varying results. My experience assures me that there has been more progress made in the scientific discovery of the active principles of medicinal agents in the laboratories of the chemist and pharmacist than in any single department of our profession. The profession of medicine and the general public are greatly indebted to such masters in the art and science of chemical combinations as Battle & Co., Park, Davis & Co., and others of their class, for the skill displayed in conveying the remedies into the human system without the attending nausea of the uncoated pills and condiments used in our best equipped dispensaries, when I first began the practice of medicine. The fact is

that the admirable work of these scientists has done as much, if not more, towards making the application of remedies a science than the theorist of our old school practitioners are willing to admit. With these general remarks allow me to call the attention to the action of one of these preparations under my immediate observation and to the physiological and therapeutic effect produced by its administration as well as to the pathological character of the diseases in which I have used it with more uniform success than any other agency known to me in my extended researches through a very long period of experiences: I refer to Iodia, a preparation from the laboratory of Battle & Co., of St. Louis, Mo. Iodia is a combination of Iodide of Potash with the active principles obtained from the green root of *Stillingia helonias*, *Saxifraga*, *Menispermum* and the phosphate of iron. It is not necessary in an article to be read by educated physicians to elaborate the characteristics of these several alternatives. It is in my opinion quite sufficient for me to remark that some of our most successful and distinguished physicians have often called the attention of the profession to the fact that combinations properly made of the active principles of remedies of a certain class produce the specific action of the class to which they belong with more certainty than any single one of these remedies do. We have as high authority as Brown Sequard for this observed fact whose prescriptions are among the curios of certain pharmacists for their remarkable and numerous combinations. For years I have desired to secure an alternative that in its effects would amount generally to a specific in certain forms of Syphilitic, Scrofulous and cutaneous diseases. I have tried the mercurial treatment, used the Iodide of Potash uncombined, and several of the vegetable alteratives but have invariably been disappointed in certain forms of these diseases, until about four years ago I commenced the use of Iodia. Since I began the use of this remedy I have had the most uniform success in the treatment of secondary syphilis and scorbutic or scrofulous diseases. Allow me to report two cases. In the spring of 1899 I was consulted by Mr. H., a traveling salesman, whose residence was then here. He presented all the symptoms and physical expressions of an advanced case of secondary syphilis and had spent hundreds of dollars, he informed me, in trying to get his health restored and to be relieved of his vile disease. When I examined him there were extensive ulcerations on the fauces and the lymphatic glands were generally enlarged with ulcerations in the right groin. Color of skin a dirty redish brown, in spots. In general he presented all the appearances of a victim of constitutional syphilis. So well described in our standard works that it is not necessary for me to present them.

This was my first case with Iodia as a trial remedy, pleased with the formula which accompanied the preparation, I placed my patient on it, giving him the maximum dose of two teaspoonfuls three times a day. He remained at home under my treatment for twenty days, taking nothing but Iodia and looking carefully to the cleanliness of his body, and the moderation of his diet. I discharged him fully restored to perfect health to all appearances. It has been now three years since his discharge and he informed me yesterday that there had never been the slightest indication of a return of the disease that had made his life miserable for many months.

Case 2. Mrs. W., found her suffering with greatly impaired vitality, from long standing leucorrheal discharge and excessive catamenial discharge. In fact there was a general uterine debility which had continued, I was informed since her last confinement in child-birth, eight months preceding my visit to her. I placed her upon Iodia, one teaspoonful and increasing the dose on the third day to two teaspoonfuls and had the satisfaction of noticing a marked improvement in her general condition, appetite increased, skin cleared up, discharges ceased and menstrual discharge natural. She has never been annoyed with her uterine troubles since being discharged ten days after I first saw her. With the exception of wine and phosphate of iron she has taken no remedy but Iodia. And so I might go on, Mr. Editor, and present dozens of cases in which I have used Iodia alone in dysmenorrhoea, leucorrhoea and general uterine debility and in all forms of syphilitic and scrofulous diseases with the unvariable result of relieving the sufferer. I trust that my long connection with the profession will relieve me even of a suspicion of endorsing a "patent nostrum." I cannot regard Iodia or any of the preparations coming from these reputable chemists and pharmacists as such. Their formulae are all clearly set forth and there can be no deception practiced upon any one. Indeed I repeat, our profession of medicine and the suffering ones of our humanity, are really indebted to these manufacturing chemists for their perfect pharmaceutical work and the skill of their chemical applications in effecting the combinations of these potential medicinal agents.

H. Dickson Capers, M.D.

Auburn, Ala.

PHYSICIAN—Good location; desiring to move to city I offer a splendid location to a physician who will purchase my house and lot; nearest competition 6 miles; fine country; nice people; average cash collection for ten years, \$2,242.55 per annum. For particulars address M. D., Sumterville, Ala.

Editorial.

JNO. C. LeGRANDE, M. D.,..... *Editor and Prop.*

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We cannot promise to furnish back numbers.

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The Address of the President.

The Journal of the American Medical Association commenting on the president's address, delivered before the American Medical Association at Saratoga, says:

"Dr. Wyeth's suggestion of the need of a uniform standard of medical qualification is brief but timely, and should receive the earnest attention of the profession generally. If its sentiment on this point is strongly and generally voiced the end will be attained, if not at once, at least at an early date. That it is practicable is beyond question, as our Canadian neighbors have demonstrated. The remarks on section papers and on branch organizations are likewise intimations of what must commend itself to every one. The recommendation of



permanent places of meeting, while doubtless not novel to everyone, is worthy of serious consideration whatever may be the outcome of the discussion. The present inadequacy of the army medical force and the prospect of matters becoming worse before they are better, are living questions not only to medical men, but to all who have the welfare of our country and its soldiers at heart. We believe the Association, both in the session and through its individual membership, will speak with no uncertain voice on this matter. The present status is an illustration and a result of our lack of influence as a profession, due, as he says, to insufficient methods of education and to our lack heretofore of thorough organization. We cannot always, with human nature as it is, prevent quacks gaining the confidence of the public, but we can make ourselves more respected when our essential standards of qualifications are uniformly more respectable and when we have shown that we possess in our professional and civic capacities influence that no one can despise or disregard. All these are possible and we may say are realities of the future, but we need not passively wait for them to come to us.

"These are only part of the suggestive features of the address; it is a valuable summary of the leading and living questions to be considered at the present session of the Association. Some of them are to be definitely settled in the near future, others, it may be, only in the remote future. We owe it to ourselves and to all those whose welfare we have at heart, to see that the outcome is not in any way a disappointment."

Dr. Rhett Goode.

Dr. Goode, of Mobile, Ala., was elected President of the Southern Railway Surgeons at a recent meeting held in the city of Washington. This is one of the most important and influential associations in the Southern States, and in its list of membership is to be found names of many of the leading surgeons of the South.

In electing Dr. Goode president of this distinguished body of surgeons, the association not only showed great wisdom in the selection of the president, but conferred an honor upon a distinguished surgeon and physician, who is in every way worthy of it.

Dr. T. P. McMahon, of Illinois, was elected first vice president.

Dr. M. W. O'Brien, of Alexandria, Va., was elected second vice president.

Dr. J. H. Harrison, of London, Tenn., was elected secretary and treasurer.

Old Point Comfort, Va., was selected as the place of meeting in 1903,



Dr. T. J. Brown.

Dr. Brown was born in Carroll county, Ga., July 25, 1862. Graduated in medicine at the Vanderbilt University Medical Department in 1885, practiced medicine two years at Dolomite, Ala. In 1887 associated himself in the practice of medicine at Pratt City with his brother, Dr. G. W. Brown.

He continued in the active practice of his profession up to a few months ago, when his health failed.

Dr. Brown was a member of the Jefferson County Medical Society, and no young man in our acquaintance enjoyed to a higher degree the esteem and respect of his colleagues than did Dr. Brown. He was not only loved by his professional brethren, but was held in the highest esteem by all who knew him. He died at the John Hopkins Hospital, Baltimore, Md., May 26, 1902.

A Soliloquy.

(After Hamlet.)

By W. W. Mangum, M.D.

To practice or not to practice—that is the question:
 Whether 'tis nobler in the mind to suffer
 The slings and malice of non-paying patients;
 Or close the ear to all such pressing calls,
 And by opposing end them? To sleep, to sleep
 All night; and by such sleep to say we end
 These profitless visits and most tiring vigils
 For these dead-beats. 'Tis a consummation
 Devoutly to be wished. To sleep, to sleep.
 At last; perchance to dream—ay, there's the rub:
 If I could but dream the ungrateful devils
 Had waked and to their senses come;
 And, coming, brought a check. There's the lack
 That makes calamity of so hard a life.
 For who would bear the work, the imposition,
 The oft repeated calls, the law's delay;
 When he, himself, might his own freedom take,
 And seek his ease unharrassed by such truck.
 Might let them of themselves go to
 The undiscovered country from whose bourn
 No traveler returns; and let them rather
 Bear those ills they have than fly to others
 With no aim to pay. Ah me!
 But conscience does make cowards of us all;
 And I shall still, no doubt, let them go on,
 And rub it in. For how know I but that
 These dead-beats may each have a wife,
 A child, who should not suffer for his sin.
 And thus the native hue of resolution
 Is sicklied o'er with the pale cast of thought,
 And enterprises of great pith and moment
 Are interfered with by the need of cash
 These rascals hold of mine.

SIMPLICITY IN TREATMENT.

Simplicity in treatment especially in diseases of women is an item of no small importance. Micajah's Medicated Uterine Wafers are particularly efficacious in Leucorrhea, Endometritis, Gonorrhea, etc., and as there is no powder to spill nor water to soil the clothing they offer an ideal treatment in the above conditions. Insert wafer in vaginal canal up to the uterus every third night preceded by copious injections of hot water,

Miscellaneous Notes.

NEW ORLEANS POLYCLINIC

Now in session fifteenth year. Closes May 31, 1901. Physicians will find the Polyclinic an excellent means for posting themselves upon modern progress in all branches of medicine and surgery. The specialties are fully taught, including laboratory work. For further information, address Dr. Isadore Dyer, Secretary, New Orleans Polyclinic, Postoffice box 797, New Orleans, La.

There will be a number of new medical college advertisements in the next issue of this Journal.

Dr. L. G. Woodson, of this city, is spending several months in Europe. He will return about the first of October.

Dr. W. M. Cunningham, of Corona, Ala., has returned from New York, where he spent several weeks in special work in the hospital of that city.

The Jefferson County Medical Society have secured comfortable quarters in the new City Hall building, where the meetings will be held in the future.

The two Filtration Plants, as suggested by the committee from the Jefferson County Medical Society, and later by the special experts, have been ordered to be put in. It is reasonable to suppose that Birmingham will have a pure water supply in the future.

GASTRALGIA—ITS TREATMENT.

Gastralgia is, for therapeutical purposes, divided into two groups by Professor Saundby (N. Y. Medical Journal). The first group comprises those cases in which pain occurs independently of eating, and the second group, those cases in which the pain occurs after food is taken. The treatment of the first class consists of change of scene, a sea voyage or mountain air and abundant food at regular intervals. The palliative treatment consists of iron, quinine, arsenic, nux vomica and the mineral acids.

For the second class, the treatment is, rest in bed, milk and lime water in sufficient quantities—say an ounce every hour. A nutrient enema of one egg, beaten up in four ounces of milk, to be given every four hours. The amount of milk should be increased with improvement, and if milk fails, from two to four ounces of lightly cooked minced meat may be substituted.

For the relief of the pain in both cases, Saundby gives morphia or heroin, but in a recent clinical report Professor Boone, College of Physicians and Surgeons, St. Louis, states that he finds one Antikamnia and Heroin Tablet (5 grains Antikamnia; 1-12th grain Heroin Hydrochloride) given as required, not only relieves the pain, but prevents its recurrence, much more satisfactorily than either heroin or morphine alone. In other respects he concurs with Professor Saundby in his method of treatment.

STATE EXAMINATIONS AND THE PRACTICE OF MEDICINE.

There are few liberal physicians who do not regret the fact that the privilege of practicing medicine in this country is hedged about by such a system of examinations, one for each separate State, or at least for each of thirty-seven States, that scarcely any one man may be privileged to practice medicine in the country as a whole. It is after all a curtailment of privilege for which the profession is largely responsible and for which a suitable remedy should be speedily applied.

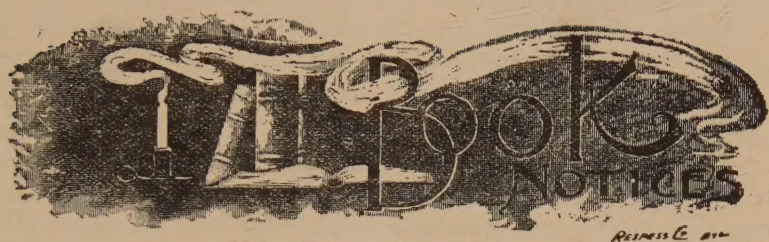
The Journal of A. M. A., makes a proposition to solve the difficulty which may prove acceptable. If it is acceptable it should be speedily brought to a practical application. If it is not acceptable, some other plan should be adopted, which will make it possible for a well qualified physician to practice medicine anywhere in the United States without undergoing thirty-seven separate examinations each over the whole field of medical subjects.

Reciprocity, it seems to us, would be the most desirable solution of the question. But it is well nigh impossible to establish a uniform standard of examinations for all the States which will be recognized by all.

The proposition of the J. A. M. A., is this: Let a national board of examiners be established by the government, ostensibly to examine into the fitness of all applicants to be considered for any appointment to medical service under the government of whatever character—Navy, War, Hospital or Pension service. Let the certificate of this board be recognized by all the States as a proper qualification to practice medicine anywhere in this country.

In order to carry out this plan it is necessary first to obtain the proper national legislation, and then at least thirty-seven State legislatures will have to be influenced to recognize the certificate of the national board. It seems to be scarcely feasible. One difficulty is that some States may refuse to enter into the plan, and there is no way in which pressure may be brought to bear so that an agreement may be reached.

It is a difficult problem, yet it is one which cries for solution.—The *Medicus*.



A PRACTICAL MANUAL OF INSANITY. For the Student and General Practitioner. By Daniel R. Brower, A.M., M.D., LL.D., Professor of Nervous and Mental Diseases in Rush Medical College, in Affiliation with the University of Chicago, and in the Post Graduate Medical School, Chicago; and Henry M. Bannister, A.M., M.D., formerly Senior Assistant Physician, Illinois Eastern Hospital for the Insane. Handsome octavo of 426 pages, with a large number of full-page inserts. Philadelphia and London: W. B. Saunders & Company, 1902. Cloth \$3.00, net.

No graduate in medicine is thoroughly equipped to practice his profession unless he be acquainted with at least the rudiments of the science of psychiatry. Broad though its domain and difficult of mastery, yet every one may readily acquire knowledge of those principles upon which depend a successful treatment of those cases of mental disorder that form a part of every physician's practice.

This work, intended for the student and general practitioner, is an intelligible, up-to-date exposition of the leading facts of psychiatry, and will be found of invaluable service, especially to the busy practitioner unable to yield the time for a more exhaustive study. The work has been rendered more practical by omitting elaborate case records and pathologic details, as well as discussions of speculative and controversial questions. Certain special features of the work, also broadening its field of usefulness, are the mention of the forms of insanity not usually met with in hospitals, and the including of a comparative table of classification and a chapter on some of the ethical questions relating to insanity as they may arise in the practice of medicine. Indeed, we know of no work of its scope that covers the field so completely, yet concisely and clearly.

ATLAS AND EPITOME OF OPERATIVE SURGERY. By Dr. Otto Zuckerkandl, Privatdocent in the University of Vienna. From the Second Revised and Enlarged German Edition. Edited, with additions, by J. Chalmers DaCosta, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, etc. Second Edition, Thoroughly Revised and Greatly Enlarged. With 40 colored plates, 278 text illustrations, and 410 pages of text. Philadelphia and London: W. B. Saunders & Co., 1902. Cloth, \$3.50 net.

This excellent work, one of Saunders' well-known Medical Hand-Atlases, needs no further recommendation to English-speaking readers than its author's name—Dr. Zuckerkandl. The rules and methods of surgical procedure are stated with the clearness that springs from definite knowledge and the emphasis born of conviction. The operations of modern surgery are described lucidly and tersely, making the book a worthy guide alike to the student and the practicing surgeon. The verbal descriptions are most accurately reinforced and illuminated by a large number of original colored lithographic plates and text cuts.

In this new edition the work has been brought precisely down to date. The revision has not been casual, but thorough and exhaustive, the entire text having been subjected to a careful scrutiny, and many improvements and additions made. A number of chapters have been practically re-written, and of the newer operations, all those of special value have been described. The number of illustrations has also been materially increased. Sixteen valuable lithographic plates in colors and sixty-one text figures have been added, thus greatly enhancing the value of the work. There is no doubt that the volume in its new edition will still maintain its leading position as a substitute for clinical instruction.

SAUNDERS' AMERICAN YEAR BOOK.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1902. A yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the

editorial charge of George M. Gould, A.M., M.D. In two volumes—Volume I, including General Medicine, Octavo, 700 pages, illustrated; Volume II, General Surgery, Octavo, 684 pages, illustrated. Philadelphia and London: W. B. Saunders & Co., 1902. Per volume: Cloth, \$3.00 net; Half Morocco, \$3.75 net.

The plan of issuing the Year-Book in two volumes, inaugurated two years ago, met with such general favor with the profession that the publishers have decided to follow the same plan with all succeeding issues. Each volume is complete in itself, and the work is sold either separately or in sets.

The contents of these volumes, critically selected from leading journals, monographs, and text-books, is much more than a compilation of data. The extracts are carefully edited and commented upon by eminent specialists, the reader thus obtaining not only a yearly digest of scientific progress and authoritative opinion in all branches of medicine and surgery, but also the invaluable annotations and criticisms of the Editors, all leaders in their several specialties. As usual, this issue of the Year-Book is not lacking in its illustrative feature; for, besides a large number of text-cuts, the Surgery volume contains five, and the Medicine volume four, full-page inserts. In every way the Year-Book of 1902 fully upholds, if it does not strengthen, the reputation won by its predecessors.

SOLLMANN'S PHARMACOLOGY.

A TEXT-BOOK OF PHARMACOLOGY. Including Therapeutics, Materia Medica, Pharmacy, Prescription-Writing, Toxicology, etc. By Torald Sollmann, M.D., Assistant Professor of Pharmacology and Materia Medica, Western Reserve University, Cleveland, Ohio. Royal octavo volume of 880 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Company, 1901. Cloth, \$3.75 net.

This work aims to furnish, in a manner suited for reference and study a scientific discussion and definite conception of the action of drugs, as well as their derivation, composition, strength, and dose. The author bases the study of therapeutics on a systematic knowledge of the nature and proprieties of drugs, and thus brings out forcibly the intimate relation between pharmacology and practical medicine. Practitioners and students will find the work an admirable guide in that most important part of their equipment, namely, how to use drugs accurately and efficaciously. The book includes the practical subjects

of materia medica, pharmacy, prescribing, incompatibility, toxicology, etc. A special chapter has been devoted to toxicologic analysis, including both the inorganic and organic poisons. Pharmaceutic assaying has likewise been given due consideration. There is also a section on laboratory experimentation, which, besides rendering the greatest aid to the student in the laboratory, will serve a basis for classroom demonstrations. The book will be of the utmost service, not alone to students and practitioners, but also to druggists and everyone interested in the use of medicines.

ATLAS AND EPITOME OF OTOTOLOGY. By Gustav Bruhl, M.D., of Berlin, with the collaboration of Professor Dr. A. Politzer, of Vienna. Edited, with additions, by S. MacCuen Smith, M.D., Clinical Professor of Otology, Jefferson Medical College, Philadelphia. With 244 Colored figures on 39 lithographic plates, 99 text illustrations, and 292 pages of text. Philadelphia and London: W. B. Saunders & Co., 1902. Cloth, \$3.00 net.

This excellent volume, the first attempt, to our knowledge, to supply in English an illustrated clinical handbook to act as a worthy substitute for personal instruction in a specialized clinic, is, indeed, a magnificent addition to Saunders' Series of Medical Hand-Atlases.

The work is both didactic and clinical in its teaching, the latter aspect being especially adapted to the student's wants. A special and highly commendable feature is the very complete exposition of the minute anatomy of the ear, a working knowledge of which is so essential to an intelligent conception of the science of otology. As in all this series of atlases, the illustrations are beautifully executed in colors, and illuminate the text in a singularly lucid manner, portraying pathologic changes with such striking exactness that the student should receive a deeper and more lasting impression than the most elaborate description could produce. Further, the association of Professor Politzer in the preparation of the work, and the use of so many valuable specimens from his notably rich collection, especially enhance the value of the treatise. The work contains everything of importance in the elementary study of otology, and, without question, is a most valuable contribution to medical literature.